Canada Pension Plan
Mortality Study

ACTUARIAL STUDY NO. 3

Office of the Chief Actuary

July 2003

FOREWORD

Worldwide, the 20th century brought tremendous gains in life expectancies. In 1900, roughly 75% of the Canadian population died before reaching age 65; today, 70% of the population dies after age 65. Over the last century life expectancy at birth increased by an estimated 27 years with the rate of change diminishing as the century progressed. Most experts agree that the rapid increase in life expectancy of the 20th century will not continue. Future increases in life expectancy will have to take place at older ages as younger ages have already experienced most of the improvement they are likely to see.

However, major medical discoveries have recently been made and will continue to be made in this century. Dr. Francis Collins, director of the National Human Genome Research Institute in the United States, has predicted, " By 2030, major genes responsible for the aging process in humans will likely have been identified, and clinical trials with drugs to retard the process may well be getting underway," but a great deal of research remains to be done on the aging process. Aging research receives only a small portion of the biomedical research budget (Hayflick, 2001) and our knowledge of the aging process is about where electronics was just after the discovery of the transistor (Held, 2002). We know a lot about the signs of aging and its consequences but we know little of what is really causing us to age. If we want to increase our life expectancy beyond the additional 15 years that could be gained by eliminating the three leading causes of death today, we will need to put more efforts and resources into aging research.

The maximum human life span of about 125 years has remained practically unchanged for the past 100,000 years (Hayflick, 1996, 1998). We observe an ever-increasing number of people reaching age 100 but we are still far from reaching a life expectancy at birth of 100 years.

Even if we were to win all the medical battles over diseases and aging, one of the most overlooked considerations when studying the demography of the future remains the socio-economic impacts of aging. Current and future trends in mortality will have major impacts on our everyday living and will create new challenges worldwide. Social and health care programs as well as the economy will be affected by these trends.

This study presents an overview of historical and future mortality trends in Canada and their impact on the Canada Pension Plan.

TABLE OF CONTENTS

Page

I. Executive Summary 7
A. Purpose of Study 7
B. Scope of Study 7
C. Main Findings 7
D. General Conclusions 9
II. Canadian Mortality Trends 10
A. Introduction 10
B. Historical Canadian Mortality 10
C. Historical Mortality Improvements 13
D. Living to Age 100 19
III. Mortality Projections 24
A. Introduction 24
B. Mortality Projections in Eighteenth CPP Actuarial Report 24
C. Impact of Mortality Improvement on CPP 30
IV. CPP Retirement Beneficiary Mortality 36
A. Introduction 36
B. Benefit Eligibility 36
C. Retirement Benefit Calculation 36
D. Description of Data 36
E. Methodology 37
F. Results 40
V. CPP Survivor Beneficiary Mortality 49
A. Introduction 49
B. Benefit Eligibility 49
C. Survivor Benefit Calculation 49
D. Description of Data 50
E. Methodology 51
F. Results 53
VI. OAS Beneficiary Mortality 58
A. Introduction 58
B. Benefit Eligibility 58
C. Benefit Calculation 58
D. Description of Data 59
E. Methodology 59
VII. Appendices 62
Appendix A Life Tables for Canada less Quebec (18th CPP Actuarial Report) 62
Appendix B Cohort Life Tables for Canada less Québec (18th CPP Report) ... 76
VIII. Bibliography 90

LIST OF TABLES

		Page
Table 1	Life Expectancies since 1921	11
Table 2	Average Annual Population-Weighted Mortality Improvement Rates	14
Table 3	Average Annual Mortality Improvement Rates (1986-1996)	15
Table 4	Contribution to Increase in Life Expectancy at Birth by Age Group (Males)	17
Table 5	Contribution to Increase in Life Expectancy at Birth by Age Group (Females)	17
Table 6	Assumed Mortality Improvement Rates for 1997	25
Table 7	Adjustment Factors for Mortality Improvement	27
Table 8	Ultimate Annual Mortality Improvement Rates (18th CPP Actuarial Report)	28
Table 9	Life Expectancy[1] at Birth (AR18 and the SSA)	29
Table 10	Life Expectancy at Age 65 (AR18 and SSA)	30
Table 11	Length of Retirement Benefit Payment Period	35
Table 12	Level of Pension of Male CPP Retirement Beneficiaries (1996)	38
Table 13	Level of Pension of Female CPP Retirement Beneficiaries (1996)	39
Table 14	CPP Retirement Beneficiary Mortality Rates (by Level of Pension – 1996)	45
Table 15	CPP Retirement Beneficiary Mortality Ratios (by Level of Pension – 1996)	46
Table 16	CPP Retirement Beneficiary Annual Mortality Improvement Rates	47
Table 17	Male CPP Retirement Beneficiary Life Expectancies	48
Table 18	Female CPP Retirement Beneficiary Life Expectancies[1]	48
Table 19	CPP Survivor Beneficiary Mortality Rates and Ratios – 1996	55
Table 20	CPP Survivor Beneficiary Annual Mortality Improvement Rates	56
Table 21	CPP Survivor Beneficiary Life Expectancies - 1996	57
Table 22	OAS Number of Beneficiaries	60
Table 23	OAS Number of Beneficiaries Distribution	61

LIST OF CHARTS

		Page
Chart 1	Life expectancies since 1921	10
Chart 2	Survival Curves since 1921	11
Chart 3	Differences between 1921 and 1996 Survival Curves	12
Chart 4	Median Age at Death	13
Chart 5	Average Annual Population-Weighted Mortality Improvement Rates	14
Chart 6	Average Annual Mortality Improvement Rates (Males 0-59)	16
Chart 7	Average Annual Mortality Improvement Rates (Females 0-59)	16
Chart 8	Average Annual Mortality Improvement Rates (Males 60-89)	16
Chart 9	Average Annual Mortality Improvement Rates (Females 60-89)	16
Chart 10	Average Annual Mortality Improvement rates (CPP Experience)	17
Chart 11	Contribution to Increase in Life Expectancy at Birth by Age Group (Males)	18
Chart 12	Contribution to Increase in Life Expectancy at Birth by Age Group (Females)	18
Chart 13	Expected Average Age at Death by Attained Age	19
Chart 14	Attained Age at which Expected Average Age at Death Equals 100	20
Chart 15	Average Mortality Improvement Resulting from Increase in Maximum Life Span	21
Chart 16	Life Expectancy at Birth as a Function of Maximum Life Span	22
Chart 17	Comparison of Survival Curves for Males	22
Chart 18	Comparison of Survival Curves for Females	23
Chart 19	Canadian and SSA Central Death Rates (Ages 1-14)	26
Chart 20	Canadian and SSA Central Death Rates (Ages 15-24)	26
Chart 21	Canadian and SSA Central Death Rates (Ages 25-44)	26
Chart 22	Canadian and SSA Central Death Rates (Ages 45-64)	26
Chart 23	Canadian and SSA Central Death Rates (Ages 65-79)	27
Chart 24	Canadian and SSA Central Death Rates (Ages 80+)	27
Chart 25	Life Expectancy at Birth (AR18 and SSA)	29
Chart 26	Life Expectancy[1] at Age 65 (AR18 and SSA)	29
Chart 27	Probability of Surviving from Birth to Age 18	31
Chart 28	Probability of Surviving from Age 18 to Age 65	31
Chart 29	Average Number of Years Lived Between the Ages 18 and 65	32

Chart 30 Probability of Surviving from Age 65 to Specified Age for Male 33
Chart 31 Probability of Surviving from Age 65 to Specified Age for Female 33
Chart 32 Probability of Dying at Specified Age for Male Age 65 34
Chart 33 Probability of Dying at Specified Age for Female Age 65 34
Chart 34 Male CPP Retirement Beneficiary Exposures (by Level of Pension – 1996) 38
Chart 35 Female CPP Retirement Beneficiary Exposures (by Level of Pension – 1996) 39
Chart 36 CPP Retirement Beneficiary Mortality Rates - 1996 41
Chart 37 Female/Male Ratio of CPP Retirement Beneficiary Mortality 41
Chart 38 CPP Retirement Beneficiary Mortality Ratios Relative to General Population 41
Chart 39 Male CPP Retirement Beneficiary Mortality (by Level of Pension – 1996) 43
Chart 40 Female CPP Retirement Beneficiary Mortality (by Level of Pension – 1996) 43
Chart 41 Male CPP Retirement Beneficiary Mortality Ratios (by Level of Pension – 1996) 44
Chart 42 Female CPP Retirement Beneficiary Mortality Ratios (by Level of Pension– 1996) 44
Chart 43 Male CPP Survivor Beneficiary Exposures – 1996 52
Chart 44 Female CPP Survivor Beneficiary Exposures – 1996 52
Chart 45 CPP Survivor Beneficiary Mortality Rates - 1996 54
Chart 46 Female/Male Ratio of CPP Survivor Beneficiary Mortality 54
Chart 47 CPP Survivor Beneficiary Mortality Ratios Relative to General Population 54

I. Executive Summary

A. Purpose of Study

This is the first Canada Pension Plan (CPP) mortality study published by the Office of the Chief Actuary (OCA). It presents an overview of Canadian population mortality over the last century as well as the results of a mortality study of CPP retirement and survivor beneficiaries. The results of the study are compared with the most recent Life Tables for Canada (LTC 1995-1997), as published by Statistics Canada.

OCA will use this study as an instrument to assess the mortality of the Canadian population and of CPP and Old Age Security (OAS) beneficiaries when producing its next triennial Actuarial Report on each plan.

B. Scope of Study

This document presents the results of mortality studies of:

- The general population;
- CPP retirement beneficiaries; and
- CPP survivor beneficiaries.

The first section provides an overview of the mortality of the Canadian population over the period 1921-1996 while the other three sections deal with CPP and OAS beneficiary mortality.

C. Main Findings

General Population

- The increase in life expectancy was quite rapid in the first 70 years of the 20th century. Mortality improvements have slowed down since the 1970s, more so for females than for males. Because of this, there has been a narrowing of the gap between male and female mortality.
- The maximum age to which we can live (maximum life span) has not significantly increased over the years. One reason is that most of the observed mortality improvements have occurred at ages 90 and below.
- The biggest contributions to the increase in life expectancy at birth have come from age groups below age 15. Mortality improvements at these ages account for about half of the observed increase in life expectancy at birth.
- A life expectancy at birth of 100 years is practically impossible in the next half century unless there are dramatic medical and scientific breakthroughs. It would require sustained mortality improvements at a level about three times what has been observed over the last 10 years.

- Alternatively, assuming a maximum human life span of about 145 years (a 35-year increase if one assumes a current maximum of 110) could result in a life expectancy at birth of 100 years.

Mortality Projections in CPP Context

- Based on the assumptions of the Eighteenth CPP Actuarial Report, life expectancy at birth for Canada is expected to increase from 76.2 years in 2000 to 82.0 in 2075 for males and from 81.6 years to 85.8 years for females. Accordingly, the gap between males and females would narrow from the current 5.4 years to only 3.8 years by 2075.

- The probability of a newborn reaching age 18, the starting age for the CPP, is already high and future improvements will only slightly increase that probability.

- The probability of a contributor age 18 reaching the normal retirement age of 65 is also expected to increase. The probability of a male age 18 reaching age 65 is expected to increase from 84.1% in 2000 to 90.8% by 2075; the corresponding figures for a female are 90.4% and 93.8%, respectively.

- CPP beneficiaries are expected to live longer. Life expectancy at age 65 for males is projected to increase from the current 16.7 years to 20.4 years by 2075 and from 20.2 years to 23.2 years for females.

CPP Retirement Beneficiaries

- For ages 60 to 64, retirement beneficiary mortality rates are significantly lower than the rates for the general population. This is mainly due to the fact that CPP disability beneficiaries at those ages are not classed as retirement beneficiaries.

- Female retirement beneficiary mortality rates after age 65 are significantly lower than the rates for the general population with the gap being about 11% at age 66 but reducing steadily thereafter and ultimately disappearing.

- Male retirement beneficiary mortality rates after age 65 are close to the general population rates, being only about 2% higher at age 66. The differential narrows as age increases and ultimately disappears.

- By level of retirement pension, female mortality rates are generally lower than for the general population except for the lowest level (i.e. less than 25% of the CPP maximum), where mortality at ages 66 and over is up to 8% higher.

- By level of retirement pension, male mortality rates are lower than for the general population only at the highest level (i.e. 75-100% of the CPP maximum), and even at that level there are some ages where this does not hold.

CPP Surviving Beneficiaries

- Survivor beneficiary mortality rates are significantly higher than the rates for the general population, especially at ages 40 and over where female rates are

about 10% to 30% higher and male mortality rates are 10% to 15% higher. The excess mortality decreases with age and vanishes by age 83 for females but only at the end of the life table for males.

D. General Conclusions

Major medical advances and improvements in the quality and standard of living in the 20th century increased our life expectancy at birth by almost 30 years. However, a great deal of medical research is still required to increase life expectancy even further. One proof is that mortality improvements have recently shown signs of slowing down. The greater slowdown in mortality improvements for females in recent years has narrowed the gender gap in mortality.

Future mortality improvements are expected to come more slowly and at older ages, as mortality rates at younger ages are already very low. In the context of the Canada Pension Plan, more and more contributors are expected to reach the normal retirement age of 65 and receive a pension. Retirement beneficiaries are also expected to receive their benefit for a longer period (about three years more by 2050).

The results of this study show that the higher the CPP retirement pension, the lower the mortality. Retirement beneficiary mortality rates at ages 60 to 64 are low because they are not affected by the higher mortality of disability beneficiaries who convert to a retirement pension at age 65. However, beneficiaries between the ages of 60 and 64 with small retirement pensions have an elevated mortality risk comparable to that which would be observed if disability beneficiaries were part of the exposure at these ages.

CPP survivor beneficiary mortality rates are significantly higher than the general population mortality rates except at the higher ages (83+), where survivor mortality rates gradually decrease to reach the general population mortality rates.

II. Canadian Mortality Trends

A. Introduction

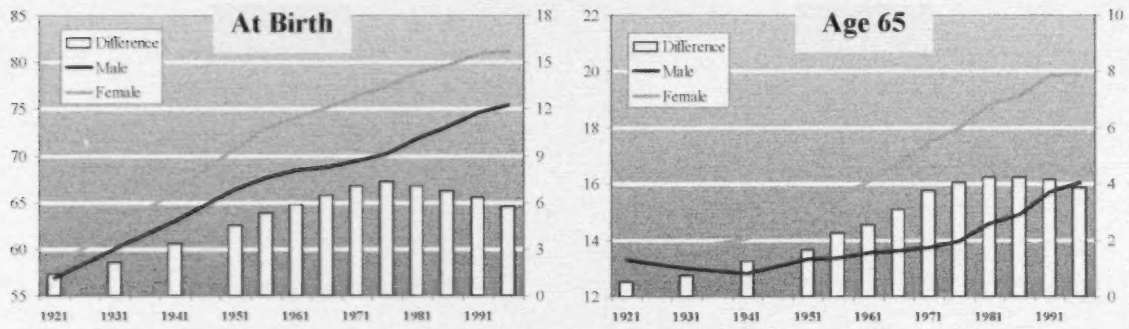
Like the rest of the industrialized countries around the world, Canada has seen significant improvements in life expectancy over the last century. Improvements in the standard of living and in working conditions, implementation of good health care programs and tremendous gains in the medical domain have all contributed to an increase in life expectancy. The next sections will look at historical trends in life expectancy and mortality improvements.

B. Historical Canadian Mortality

Chart 1 and Table 1 show the evolution of Canadian life expectancy at birth and at age 65 from 1921 to 1996 using the Life Tables for Canada (LTC), as published by Statistics Canada.

In the last-century, most of the increases in life expectancy at birth have occurred before 1970. Since the early 1970s life expectancy at birth has increased by 6 years, which is much less than the estimated 21-year increase experienced from 1900 to 1970. Note that this pattern is not always observed in other countries; for example, Japan did not experience a similar slowdown in life expectancy gains (Robine and Vaupel, 2002).

Chart 1 Life expectancies since 1921



From 1921 to the early 1970s, mortality was affected by two world wars; this may be one of the reasons why the gap between male and female life expectancy increased over that period. Since then, male longevity has been catching up to female longevity. Increases in life expectancy at age 65 for males were relatively small over the first 70 years of the 20th century, increasing by about half a year as compared to almost four years for females. Since the early 1970s, male and female life expectancy at age 65 has increased by about two and a half years to 16.0 and 19.9 years for males and females respectively.

Table 1 Life Expectancies since 1921

	Life Expectancy at Birth			Life Expectancy at Age 65		
Year	Male	Female	Difference	Male	Female	Difference
1921	56.9	58.3	1.4	13.3	13.8	0.5
1931	60.0	62.1	2.1	13.0	13.7	0.7
1941	63.0	66.3	3.3	12.8	14.1	1.3
1951	66.4	70.8	4.4	13.3	15.0	1.7
1956	67.6	72.9	5.3	13.4	15.6	2.2
1961	68.4	74.2	5.8	13.5	16.1	2.6
1966	68.8	75.2	6.4	13.6	16.7	3.1
1971	69.4	76.4	7.0	13.7	17.5	3.8
1976	70.2	77.5	7.3	14.0	18.0	4.0
1981	71.9	78.9	7.0	14.6	18.8	4.2
1986	73.0	79.7	6.7	14.9	19.1	4.2
1991	74.6	80.9	6.3	15.7	19.9	4.2
1996	75.4	81.2	5.8	16.0	19.9	3.9

Even though life expectancy increased considerably over the last century, the maximum age to which we can live has not improved much for centuries. Increasing life expectancy through medical discoveries and a better standard of living cannot do much for the fact that with time the human body is continuously aging.

Chart 2 demonstrates the results of that lack of knowledge of the aging process. It shows the population survival curves (probability for a newborn to survive to a given age) based on the LTC mortality rates for 1921, 1941, 1961, 1981 and 1996. The "squaring" of the survival curve can be explained by the increase in life expectancy while the maximum age to which we can live is assumed to remain constant at 110 years.

Chart 2 Survival Curves since 1921

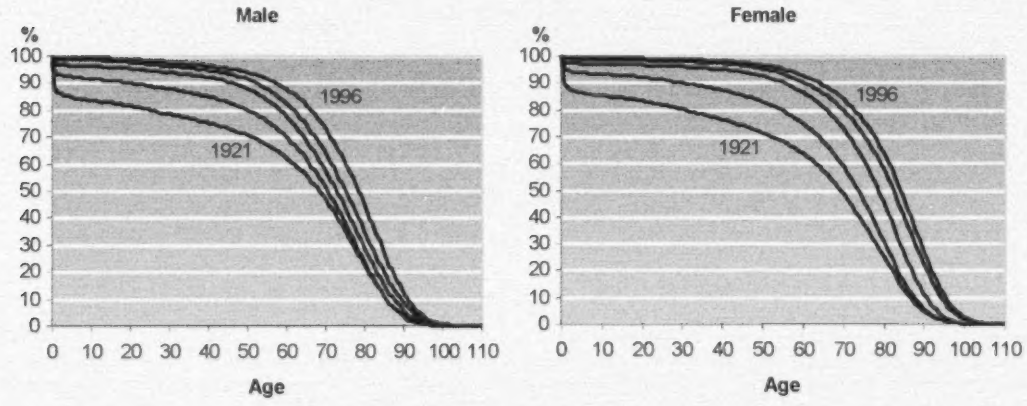
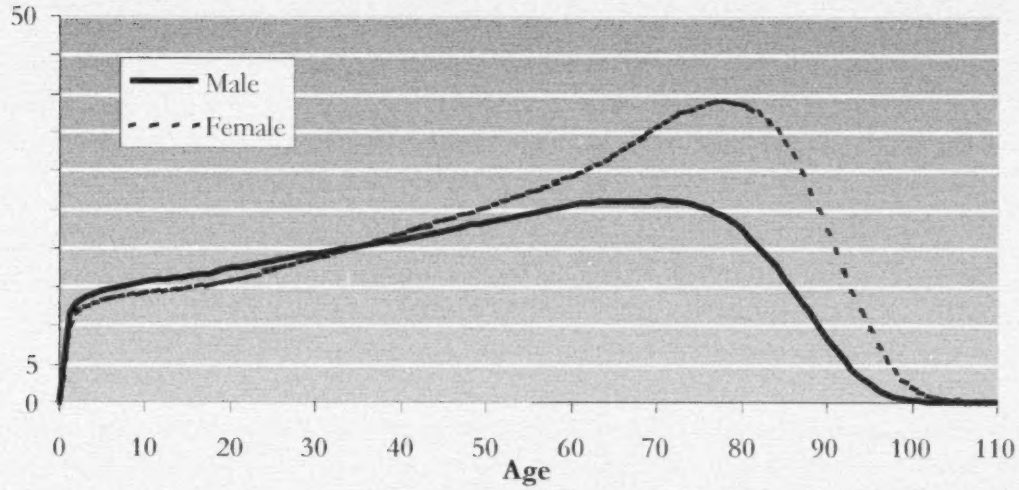


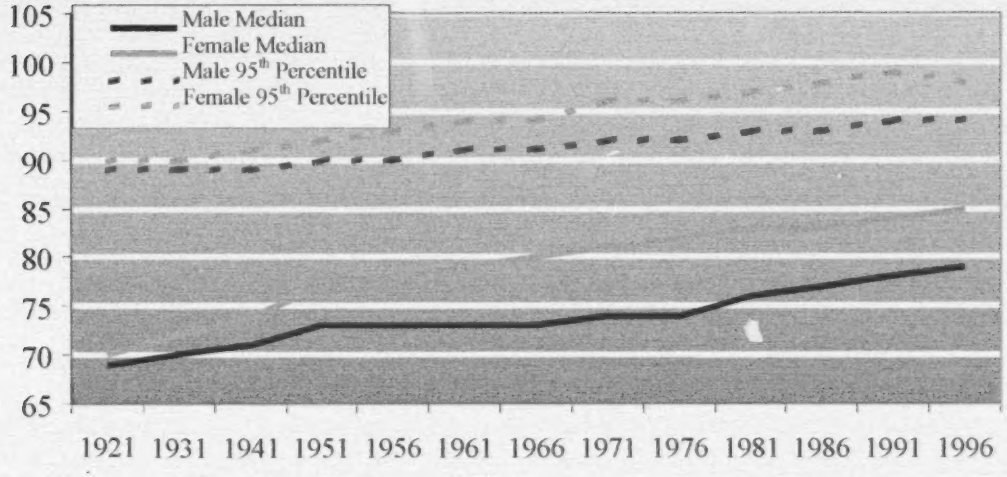
Chart 3 shows the differences in survival curves by gender between 1921 and 1996. For females the maximum difference is at about age 80, age reached by 70% of women in 1996 but only 30% in 1921. The maximum difference for males is between age 65 and age 75 which were reached by about 70% of men in 1996 and 45% in 1921.

Chart 3 Differences between 1921 and 1996 Survival Curves



Most of the historical mortality improvements have occurred at ages below 90. One consequence of the squaring of the survival curve is that more people are now surviving to older ages. In 1921 a male newborn had a 56% probability of reaching age 65 while a female newborn had a 57% probability; by 1996 those probabilities had risen to 82% and 90%, respectively. Furthermore, in 1921 a cohort of newborns would have lost half of its members by age 69 for males and by age 70 for females (see Chart 4). In 1996 the age by which half of the cohort of newborns has died is 79 for males and 85 for females, an increase of 9 and 15 years respectively. Chart 4 also shows similar statistics for the 95th percentile, i.e. the age by which 95% of the cohort has died. In this case the age at death increased by only 5 years (from 89 to 94) for males and by only 9 years (from 90 to 99) for females.

Chart 4 Median Age at Death



C. Historical Mortality Improvements

It is instructive to look at the pattern of mortality improvement by age group and sex. Accordingly this section presents the historical mortality improvements for different age groups and time periods, based on various sources of data. We define the annual mortality improvement rates as the ratio of mortality rates over a one-year period. The three sources of data used to determine the average annual mortality improvements are:

- Life Tables for Canada (LTC), published by Statistics Canada;
- Central death rates (ratio of calendar year deaths to July 1st population); and
- CPP retirement beneficiary mortality experience.

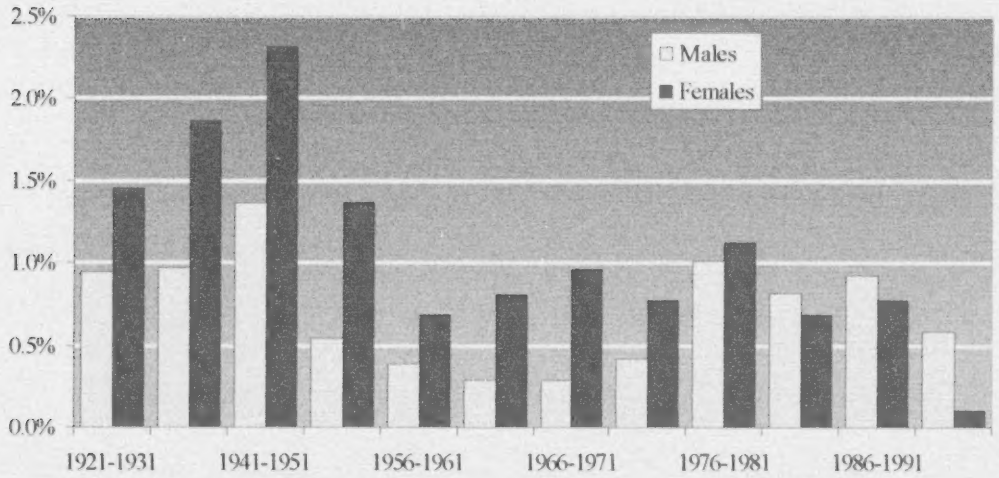
The LTC-based Table 2 and Chart 5 provide an overview of the average annual population-weighted mortality improvement rates in Canada for various subperiods over the 75 years ended in 1996. Average annual mortality improvement rates for males increased over the first 50 years, they then declined to reach a minimum in the first part of the 60s. They then increased again over the next 15 years but started to decline again over the last 20 years. In fact, mortality improvement rates of females are now lower than for males. This helps explain the recent narrowing of the gap in life expectancy between males and females (see Chart 1 and Table 1).

Table 2 Average Annual Population-Weighted Mortality Improvement Rates

Period	Male		Female	
	0-89 %	All %	0-89 %	All %
1921-1931	1.08	0.95	1.52	1.45
1931-1941	0.99	0.97	1.95	1.87
1941-1951	1.38	1.36	2.42	2.31
1951-1956	0.57	0.54	1.32	1.36
1956-1961	0.40	0.39	0.93	0.68
1961-1966	0.21	0.29	0.82	0.80
1966-1971	0.31	0.29	0.94	0.96
1971-1976	0.44	0.42	0.84	0.77
1976-1981	1.00	1.01	1.11	1.13
1981-1986	0.87	0.82	0.76	0.69
1986-1991	0.95	0.93	0.78	0.77
1991-1996	0.65	0.58	0.21	0.10

Note: Each rate was obtained by comparing the crude death rates (total annual deaths as a proportion of the population) at the beginning and the ending of the subperiod, assuming that the beginning population remained unchanged throughout the subperiod.

Chart 5 Average Annual Population-Weighted Mortality Improvement Rates



Note: see note to Table 2.

Table 3 presents average annual mortality improvement rates over the period 1986-1996 by source of data. It shows that over the last ten years mortality improvements of males have been generally stronger than for females, the notable exception being at ages 30 to 44. Table 3 shows that the different sources of data produced relatively similar patterns.

Table 3 Average Annual Mortality Improvement Rates (1986-1996)

Age Group	Male			Female		
	LTC	Central Death Rates	CPP Retirement	LTC	Central Death Rates	CPP Retirement
	(%)	(%)	(%)	(%)	(%)	(%)
0	2.98	3.47	-	2.54	2.90	-
1-4	4.32	4.56	-	3.55	4.83	-
5-9	4.70	4.70	-	2.78	2.63	-
10-14	3.17	3.74	-	1.61	1.29	-
15-19	2.62	3.48	-	1.54	1.80	-
20-24	1.86	2.36	-	1.50	1.67	-
25-29	1.76	0.98	-	1.07	0.99	-
30-34	0.31	-0.26	-	0.90	0.77	-
35-39	-0.13	-0.97	-	0.74	0.44	-
40-44	0.74	-0.11	-	1.28	1.06	-
45-49	2.21	1.92	-	1.85	1.77	-
50-54	2.55	2.47	-	1.92	1.85	-
55-59	2.78	2.82	-	1.33	1.07	-
60-64	2.41	2.65	-	1.32	1.43	-
65-69	2.03	2.10	1.76	1.17	1.14	0.84
70-74	1.70	1.82	1.22	1.17	1.27	0.64
75-79	1.35	1.58	1.15	1.03	1.07	0.43
80-84	0.77	0.92	0.42	0.64	0.84	0.09
85-89	0.32	0.23	-0.37	0.32	0.42	-0.72

Charts 6 through 10 reveal that the slowdown in average annual mortality improvement rates, for age above 45, is more pronounced for females than for males. In the last five to ten years, females have even experienced mortality deterioration (negative improvements) at very old ages (85+, Charts 9 and 10). It is worth noting that mortality rates at the very old ages in Canada have been the source of many discussions and that quality and reliability of the data is considered by many to be questionable (Kannisto, 1994).

The charts also reveal that annual mortality improvement rates reduce with age, i.e. the older the age group the lower the mortality improvements. This is probably a sign that diseases affecting younger ages are easier to overcome than those affecting old age, where there is still much to be learned. The historic increases in life expectancy are mostly due to medical battles that were won at ages under 10. The struggle to eradicate the main diseases at the older ages is tougher and will take more time. This could explain the decrease in mortality improvement in the last five years (1991-1996) as compared to the last 10 or 15 years. Because aging is a natural process, that is inevitable and makes humans more prone to diseases, the medical advances at older ages will come more slowly and at greater expense and effort.

Biomedical technologies are still in their infancies today; this could explain the slow mortality improvements at older ages. The improvements already made at older ages mostly come from improvements in quality of living and improved working environment and conditions.

Chart 6 Average Annual Mortality Improvement Rates (Males 0-59)

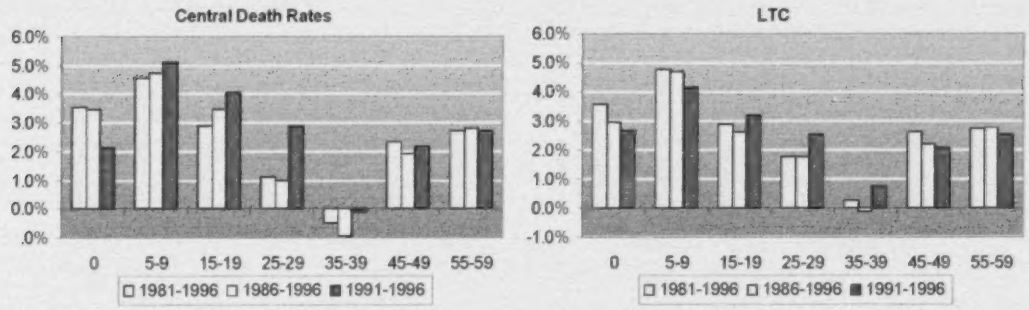


Chart 7 Average Annual Mortality Improvement Rates (Females 0-59)

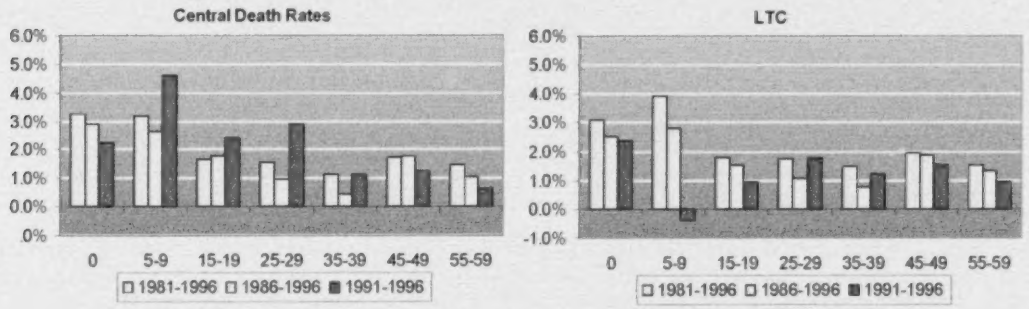


Chart 8 Average Annual Mortality Improvement Rates (Males 60-89)

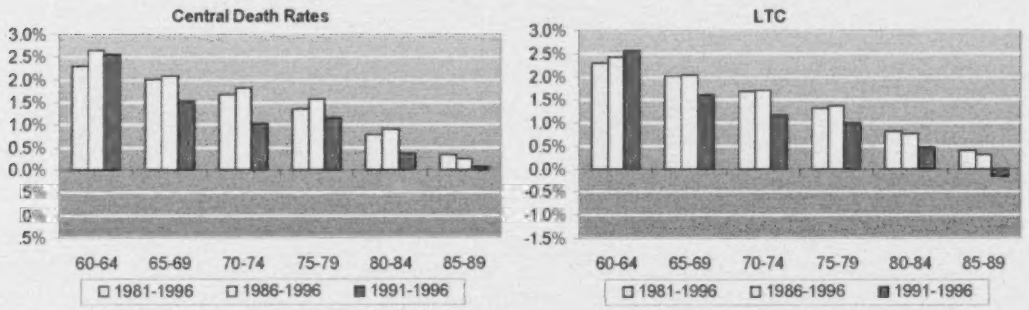


Chart 9 Average Annual Mortality Improvement Rates (Females 60-89)

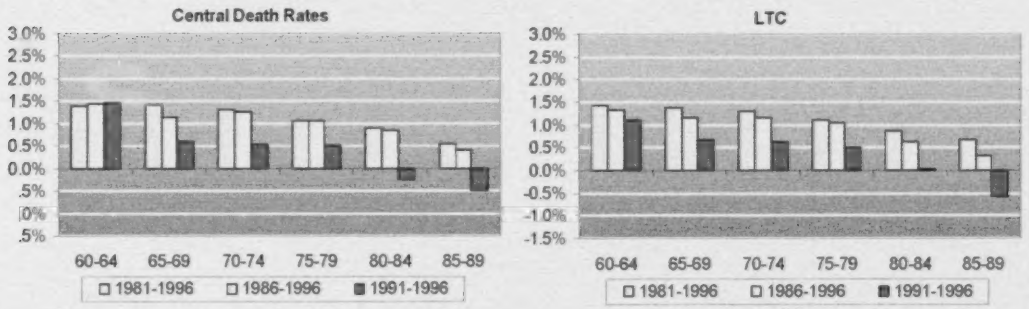
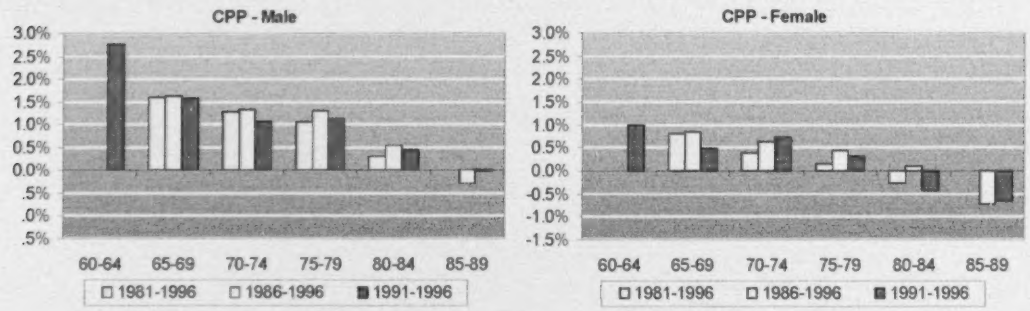


Chart 10 Average Annual Mortality Improvement rates (CPP Experience)



It is interesting to look at the historical contribution of the different age groups to the overall increase in life expectancy at birth. Tables 4 and 5 show the ages that contributed the most to the life expectancy increase, based on the methodology of D.M. Cutler (Cutler et al, 2001). Also shown is the projected contribution of each age group based on the Eighteenth CPP Actuarial Report mortality assumption.

Table 4 Contribution to Increase in Life Expectancy at Birth by Age Group (Males)

Change attributable to	1900-1940	1940-1980	1980-2000[1]	2000-2020[1]	2020-2060[1]
Infant mortality (<1)	7.8	3.4	0.4	0.2	0.1
Child mortality (1-14)	3.0	1.5	0.2	0.1	0.0
Young adult mortality (15-44)	1.6	1.4	0.6	0.3	0.3
Older adult mortality (45-64)	-0.2	0.9	1.6	0.7	0.5
Elderly mortality (65+)	-0.6	1.0	1.4	1.1	1.6
Covariance terms	0.6	0.5	0.2	0.1	0.0
Total Change	12.2	8.6	4.4	2.5	2.5

[1] Based on the 18th CPP Actuarial Report mortality assumption (see section III. B).

Table 5 Contribution to Increase in Life Expectancy at Birth by Age Group (Females)

Change attributable to	1900-1940	1940-1980	1980-2000[1]	2000-2020[1]	2020-2060[1]
Infant mortality (<1)	8.1	2.8	0.4	0.1	0.1
Child mortality (1-14)	3.4	1.3	0.2	0.0	0.0
Young adult mortality (15-44)	2.3	2.2	0.3	0.1	0.1
Older adult mortality (45-64)	0.3	1.8	0.7	0.3	0.3
Elderly mortality (65+)	-0.3	3.1	1.2	0.7	1.4
Covariance terms	1.1	1.3	0.1	0.0	0.0
Total Change	14.8	12.6	2.8	1.2	2.1

[1] Based on the 18th CPP Actuarial Report mortality assumption (see section III. B).

Charts 11 and 12 clearly show that in the early 20th century, the main force behind longer life expectancy was the strong decrease in newborn mortality. During the first part of the 20th century, improvements in infant mortality contributed eight years to the total increase of 12 years in life expectancy. With time, the biggest contribution has gradually shifted to older age groups because there is little to be gained from improving the already negligible mortality rates at younger ages.

Currently most of the improvements come from ages 45 and over. It is projected that the biggest source of increase in life expectancy will come from those aged 65 and over.

Chart 11 Contribution to Increase in Life Expectancy at Birth by Age Group (Males)

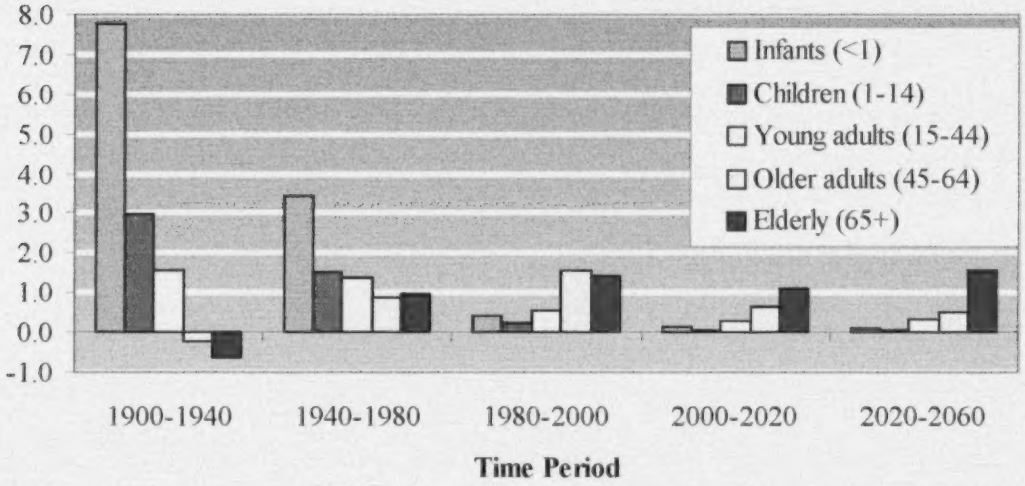
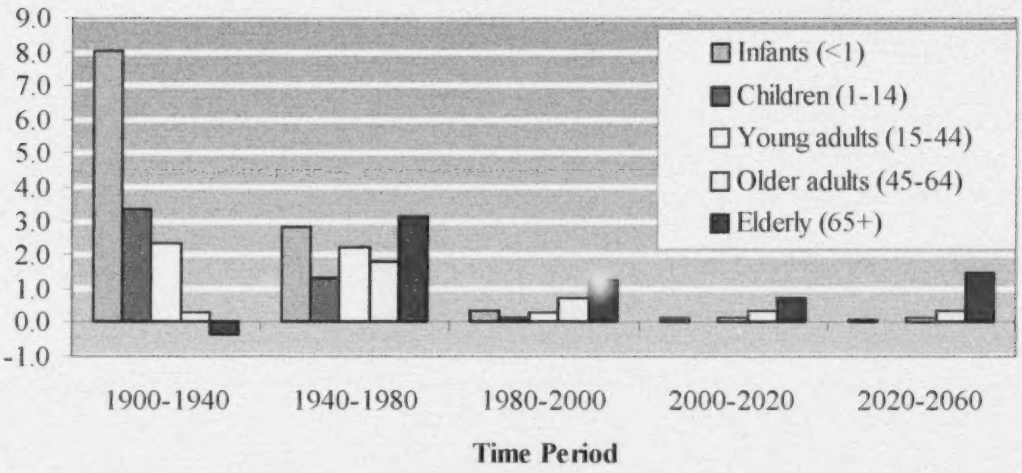


Chart 12 Contribution to Increase in Life Expectancy at Birth by Age Group (Females)

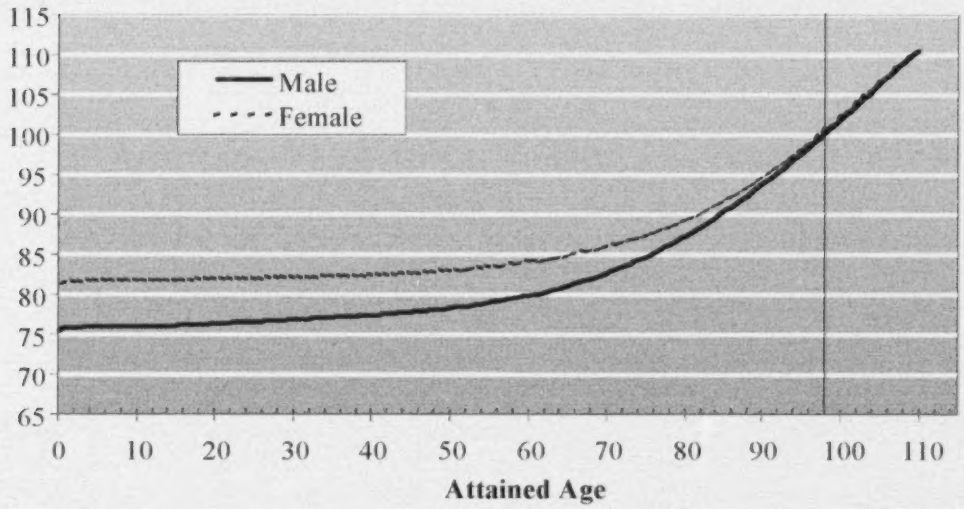


D. Living to Age 100

The combination of improved mortality, genetic research and advances made in medical science raise a question as to whether a life expectancy of 100 years is possible in the near future. The purpose of this section is to examine the extent to which current mortality rates need to be reduced to obtain a life expectancy at birth of 100 years. We will use simple mathematical models based on the 1995-1997 Life Tables for Canada (LTC)[1] combined with general mortality improvements. A general improvement of, say, 10% means that all of the base mortality rates are reduced by 10%.

The life expectancy for an individual at a given age determines the expected average age at death. Chart 13 below, based on the 1995-1997 LTC, confirms that the average age at death is a non-decreasing function of attained age. It follows that the expected average age at death for a newborn is the lowest of all. From Chart 13 it is interesting to observe that it is only when an individual reaches the expected age of 98 that the average age at death is 100 for both males and females.

Chart 13 Expected Average Age at Death by Attained Age



We can now conduct a simple test to see at what age the expected average age at death becomes 100 when we apply a general improvement to the 1995-1997 LTC mortality rates. If there were no mortality from age 0 to any given age, the average age of death for a newborn would then equal the expected average age at death of the given age. As an example, all else being equal, if all mortality rates were zero up to age 98, then the expected average age at death of a newborn would become 100, the same as at age 98. Chart 14 shows the age at which the expected average age at death reaches 100 after applying various general mortality improvements.

[1] The mortality rate at the terminal age (109 years) of the 1995-1997 LTC is less than 1.00. To close the table, we assumed a rate of 1.00 at age 110.

Chart 14 Attained Age at which Expected Average Age at Death Equals 100 (by Level of General Mortality Improvement)

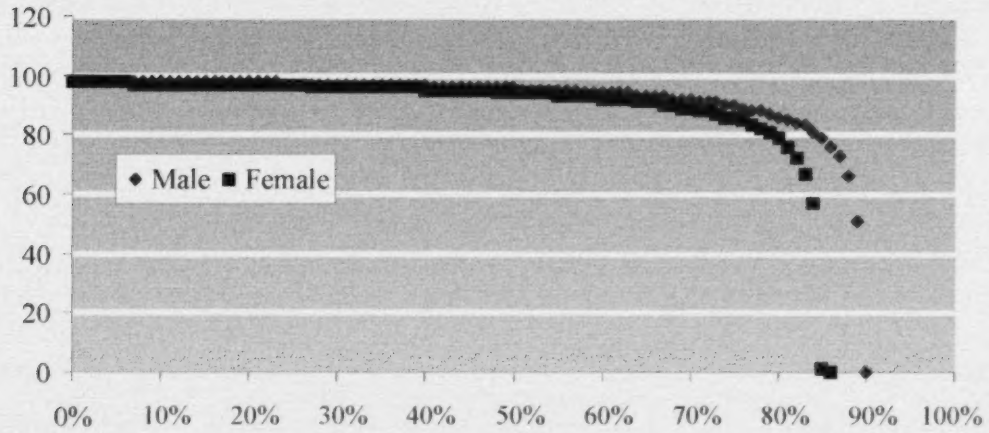


Chart 14 shows that for males the 1995-1997 LTC mortality rates at all ages must decrease by over 90% if we want to have an expected average age at death of 100 for a newborn; for females, the corresponding figure is over 85%. The effect is more significant at later ages because the mortality rates are higher. To put these figures in perspective, to achieve a 90% mortality improvement over the next 50 years, we would need an average annual mortality improvement rate of 4.5%. The observed average annual mortality improvement rate in Canada between 1986 and 1996 was about 1.5%. Thus, to achieve 90% mortality improvement would require mortality to improve at three times the current rate, across all ages over the next 50 years, or it would require 150 years of annual mortality improvements equal to the current rate.

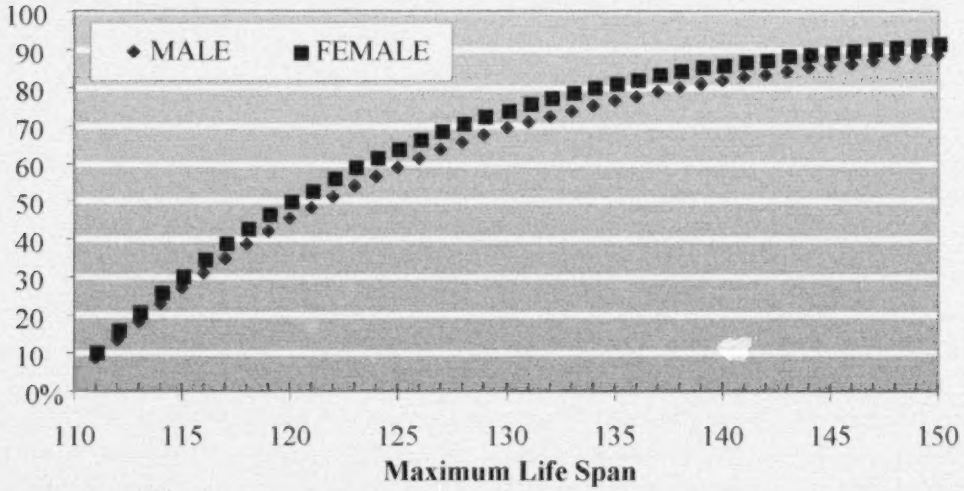
Chart 14 also shows we need general mortality improvement of over 70% to see a noticeable drop in the age at which the expected average age at death becomes 100. This test was important because it implies that to significantly increase life expectancy at birth, mortality improvements must be significant, especially at later ages.

It makes sense that life expectancy at birth would increase the most if mortality improvement happens at the older ages, as this is where most people die. This suggests a second test; i.e. measuring the effect of mortality improvement at older ages through an increase in the maximum life span, the ultimate age to which a human being can live. It is worth noting that our mathematical models have so far assumed a maximum life span of 110. Some may consider this unrealistic because significant mortality improvement at older ages should result in an increase in the maximum life span.

The simplest way to implement an increase in the maximum life span using the 1995-1997 LTC is to map the current 111 mortality rates (from ages 0 to 110) to

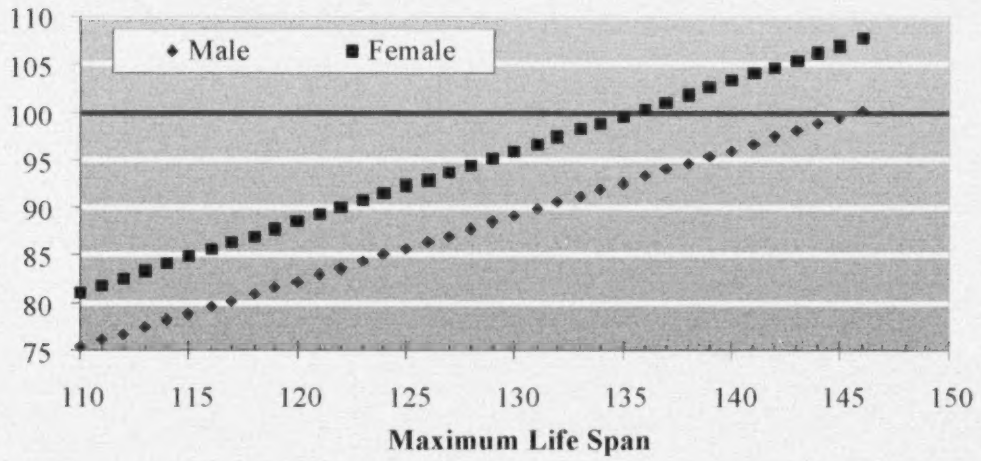
111 "new" ages from 0 to 110+n. In fact we increase the 111 current ages by a factor of 1+n/110. With this approach, for example, if we were to apply the mortality rates to a new table ending at age 121, i.e. 110(1 + 10%), the mortality rate currently applicable for age 50 would be used for age 55 and so forth. Because mortality rates generally rise with age, we are in effect applying lower mortality rates. With the same example, the mortality rate for a male age 66 would be 0.011 instead of 0.020, or the equivalent of the mortality rate for someone currently aged 60. This corresponds to a decrease of 45% in the mortality rate at age 66. Therefore the difference between this approach and the previous model is in the way the mortality improvement is distributed by age. Chart 15 shows the resulting average mortality improvement by number of years in the maximum life span.

Chart 15 Average Mortality Improvement Resulting from Increase in Maximum Life Span



Let us examine what effect an increase in the maximum life span has on the life expectancy at birth. Chart 16 presents this information for both males and females. It shows that if we keep the shape of the mortality curve similar to the 1995-1997 LTC using the age mapping as explained earlier, males would need a maximum life span of 146 years to have a life expectancy at birth of 100 years; the comparable figure for females is 135 years. For males, increasing the maximum life span by 36 years to age 146 is equivalent to an average improvement in mortality of 86% (see Chart 15), which is consistent with the 90% mortality improvement shown to be necessary in the previous model.

Chart 16 Life Expectancy at Birth as a Function of Maximum Life Span



Finally, Charts 17 and 18 compare the survival curves for each gender for the two mortality improvement models that result in a life expectancy at birth of 100 years. Chart 17 compares the general mortality improvement of 90% for male ages 0 to 109 with the increase in maximum life span to age 146. The same is done in Chart 18 but for females, for whom the corresponding figures are 85% and age 135.

Chart 17 Comparison of Survival Curves for Males
(Probability of Survival from Age 0 to Attained Age)

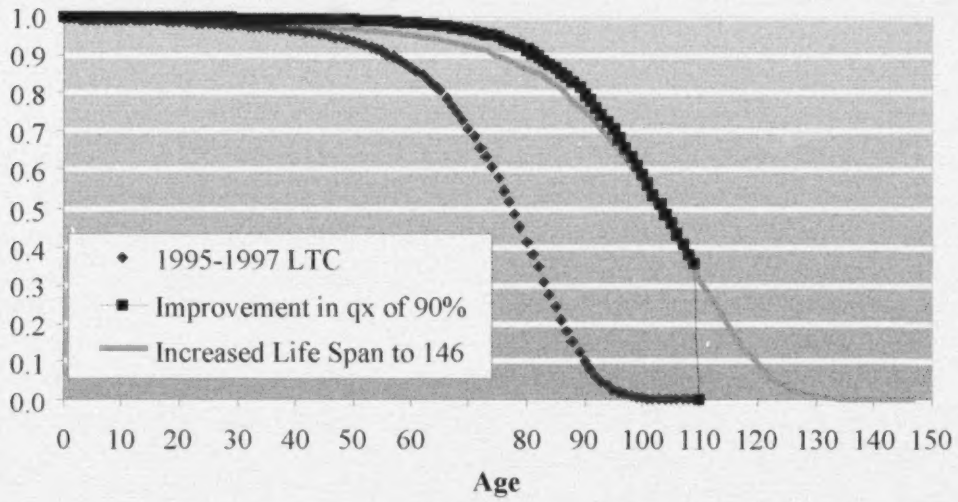
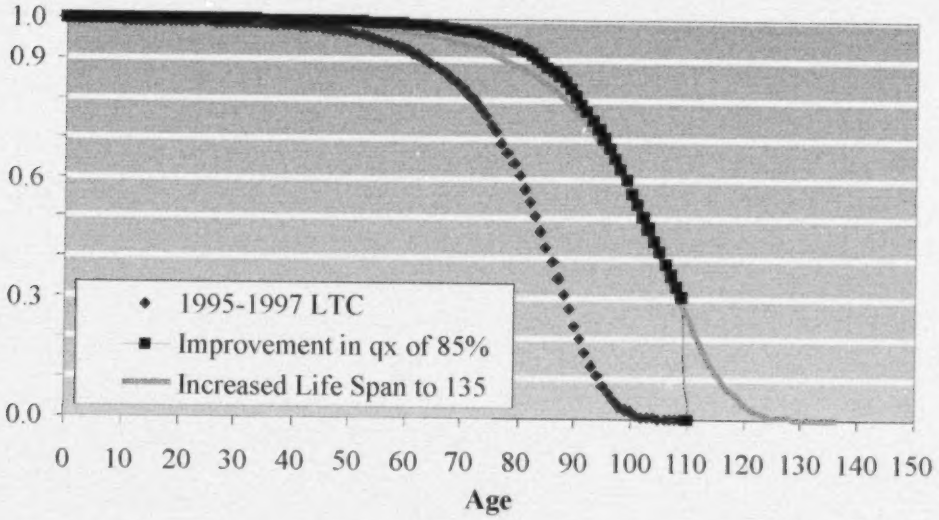


Chart 18 Comparison of Survival Curves for Females
(Probability of Survival from Age 0 to Attained Age)



III. Mortality Projections

A. Introduction

One of the principal components of the Eighteenth CPP Actuarial Report (AR18) is the population projection, which is used to determine the contributors, beneficiaries and total expenditures in each future year. To obtain the projected population, assumptions on migration, fertility and mortality rates must be made. To project mortality rates, our methodology requires the use of mortality improvement factors. This section gives an overview of the assumptions made for mortality and the associated mortality improvement rates.

B. Mortality Projections in Eighteenth CPP Actuarial Report

The methodology used to project mortality rates for AR18 is based on an approach that uses two sets of mortality improvement rates. The first sets defines the initial annual mortality improvement rates based on the most recent mortality experience, and is used to improve mortality rates for the first projection year. The second set is based on a study by cause of death and corresponds to the ultimate annual mortality improvement rates for years 2020 and thereafter. Intermediate annual improvement rates between the initial year 2020 are determined by linear interpolation.

The starting point of our mortality projection is the most recent Life Tables for Canada (LTC), which at the time of AR18 were the 1990-92 LTC. These tables were projected to 1996 using average mortality improvement rates that enabled us to reproduce the life expectancy at birth and at age 65 as published by Statistics Canada for 1996.

Table 6 shows the annual mortality improvement rates assumed for 1997 in AR18, based on the Canadian experience over the ten years ended 1997.

Table 6 Assumed Mortality Improvement Rates for 1997

Age Group	1987-1996 Average		Assumed for 1997 in AR18	
	Male	Female	Male	Female
	(%)	(%)	(%)	(%)
0	3.48	2.64	3.50	2.75
1-4	4.32	4.03	4.00	3.00
5-9	4.16	2.65	4.00	2.50
10-14	3.79	1.17	3.75	1.75
15-19	3.53	1.25	3.25	1.50
20-24	2.58	2.20	2.75	1.50
25-29	2.02	1.20	1.75	1.50
30-34	0.52	1.04	0.75	1.00
35-39	-0.10	0.59	0.25	0.75
40-44	0.04	0.89	0.50	1.00
45-49	1.92	1.47	1.50	1.50
50-54	2.35	1.96	2.25	1.50
55-59	2.71	1.16	2.50	1.50
60-64	2.67	1.40	2.50	1.25
65-69	2.03	0.95	2.25	1.25
70-74	1.82	1.07	1.75	1.00
75-79	1.45	0.87	1.25	0.75
80-84	0.79	0.56	0.75	0.50
85-89	0.19	-0.08	0.25	0.00

Beyond 2020, annual mortality improvement rates in AR18 were determined from the latest United States Social Security Administration (SSA) mortality study upon which the 2000 Annual Report of the Board of Trustees as adjusted to reflect Canadian mortality experience. The SSA study was used because of its exhaustive research on mortality improvement rates by cause of death and by age group. Because causes of death in North America should continue to be similar in the future, it is reasonable to assume that the SSA rates should apply to Canadian mortality. However, to recognize historical differences between the two countries, the SSA rates were further adjusted. Historically, death rates for the two countries have shown similar patterns.

The AR18 ultimate annual mortality improvement rates (years 2021 and thereafter) are the SSA mortality improvement rates adjusted for Canadian experience. Mortality ratios of Canadian mortality to SSA mortality for the five years ended in 1997 were determined by age group (0, 1-14, 15-24, 25-44, 45-64 and 65+)[1]. The ratios were then divided into four experience classes (0-25%, 25-50%, 50-75%, and 75-100%), according to the degree of closeness between Canadian and American mortality levels. The idea is that the closer the mortality of a Canadian age group is to that of its American counterpart, the closer the improvement mortality factor for that Canadian age should be to that determined by the SSA. Contrarily, the lower the Canadian mortality relative to American mortality for a given age group, the lower the Canadian mortality improvement

[1] See charts 19 to 24 for a comparison of the experience from 1926 to 1997.

factor will be relative to its American counterpart, given that we assume a convergence of Canadian and American mortality levels in the long run.

Chart 19 Canadian and SSA Central Death Rates (Ages 1-14)

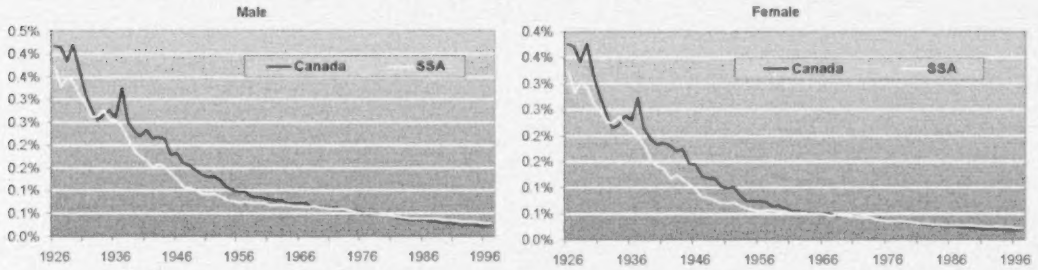


Chart 20 Canadian and SSA Central Death Rates (Ages 15-24)

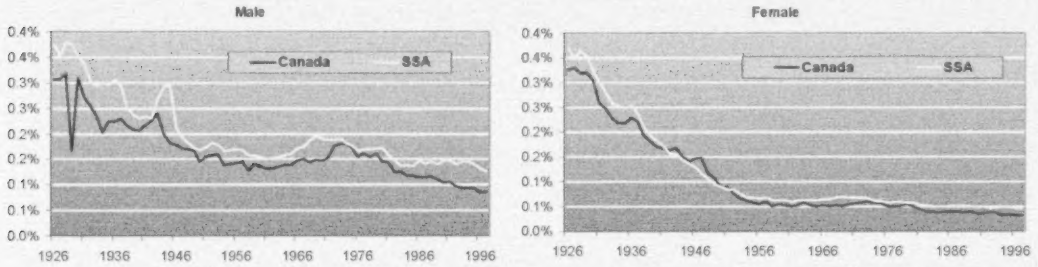


Chart 21 Canadian and SSA Central Death Rates (Ages 25-44)

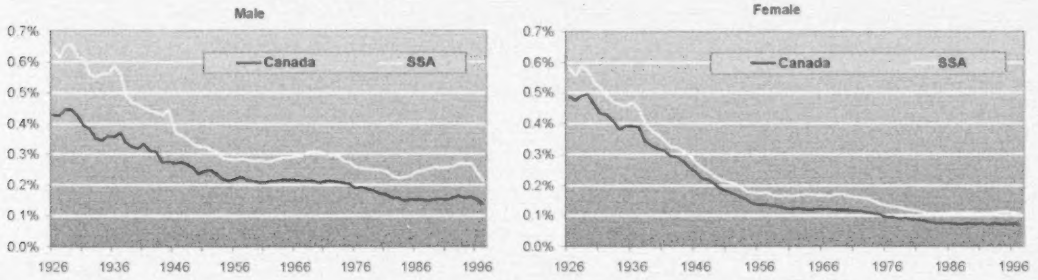


Chart 22 Canadian and SSA Central Death Rates (Ages 45-64)

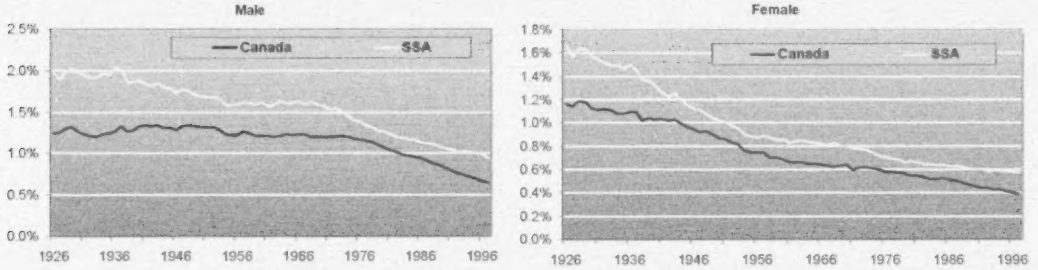


Chart 23 Canadian and SSA Central Death Rates (Ages 65-79)

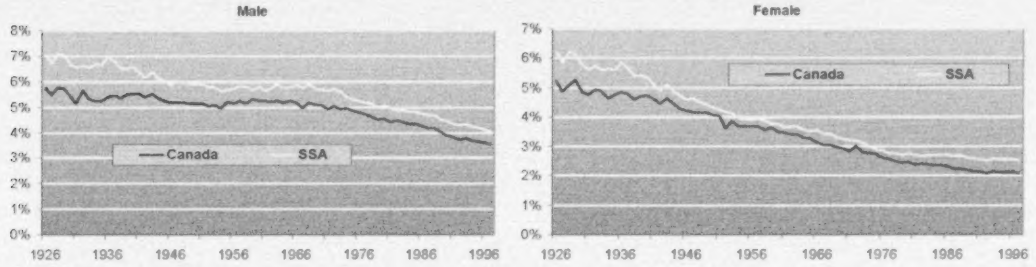
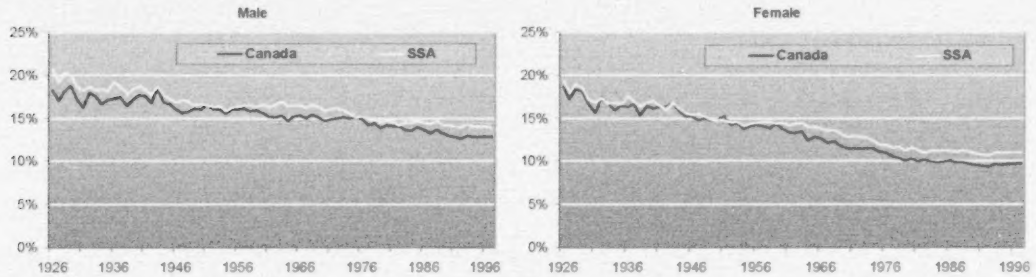


Chart 24 Canadian and SSA Central Death Rates (Ages 80+)



To develop the adjustment factors applied to the ultimate SSA mortality improvement rates (see Table 7) the recent mortality improvement experience of all the age groups found in a given experience class was combined on a unisex basis. For example, to determine the adjustment factor for the 75% - 100% mortality ratio experience class, the age groups 0-1 and 1-14 were combined because only their ratios were within the 75%-100% range. For those two age groups the mortality improvement during the five years ended in 1997 were 90% of the corresponding American mortality improvement rates. This approach was used to find the adjustment factor for each of the mortality ratio experience classes. These factors were then used to develop the ultimate mortality improvement rates in AR18 (see Table 8).

Table 7 Adjustment Factors for Mortality Improvement

Experience Class (Mortality Ratios)	Canadian Adjustment to SSA Experience
75% to 100%	0.90
50% to less than 75%	0.80
25% to less than 50%	0.70
0% to less than 25%	0.50

Table 8 Ultimate Annual Mortality Improvement Rates (18th CPP Actuarial Report)

Age	AR18 (2021+)		SSA (2024+)	
	Male	Female	Male	Female
	(%)	(%)	(%)	(%)
0	1.35	1.25	1.49	1.55
1-4	0.95	0.85	1.06	1.08
5-9	0.95	0.85	1.07	1.07
10-14	0.95	0.85	1.02	1.05
15-19	0.65	0.55	0.78	0.76
20-24	0.65	0.55	0.79	0.75
25-29	0.65	0.50	0.79	0.75
30-34	0.65	0.50	0.78	0.74
35-39	0.65	0.50	0.80	0.74
40-44	0.65	0.50	0.83	0.72
45-49	0.60	0.50	0.87	0.71
50-54	0.60	0.50	0.80	0.68
55-59	0.60	0.50	0.77	0.68
60-64	0.60	0.50	0.75	0.69
65-69	0.60	0.50	0.71	0.63
70-74	0.60	0.50	0.71	0.64
75-79	0.60	0.50	0.71	0.66
80-84	0.55	0.50	0.71	0.70
85-89	0.55	0.50	0.59	0.59
90-94	0.55	0.50	0.61	0.62
95-99	0.55	0.50	N/A	N/A
100-104	0.55	0.50	N/A	N/A
105-109	0.55	0.50	N/A	N/A

To show the effect of the foregoing mortality improvement factors, current mortality rates for both countries were projected to calendar years 2025, 2050, and 2075. For each such year, life expectancies at birth and at age 65 were calculated on the assumption of no subsequent mortality improvement. The resulting life expectancies are compared to corresponding figures for various calendar years in the past. As can be seen from the tables 9 and 10 and charts 25 and 26, the current differences in life expectancies at birth and age 65 between the two countries decrease over the projection period. By 2075 the difference is less than a year for each sex, both at birth and at age 65.

Chart 25 Life Expectancy[1] at Birth (AR18 and SSA)

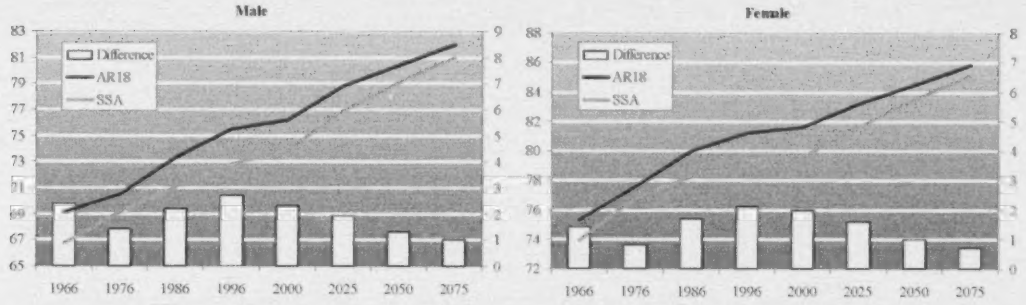
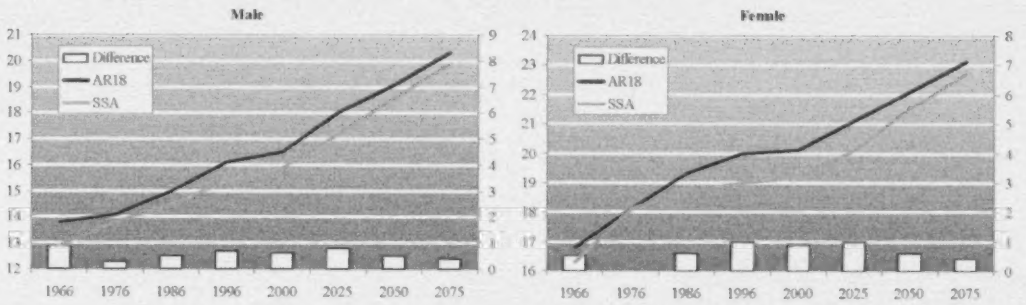


Table 9 Life Expectancy[1] at Birth (AR18 and the SSA)

	AR18 (Canada)		SSA (United States)	
Year	Male	Female	Male	Female
1966	69.1	75.3	66.7	73.9
1976	70.5	77.6	69.1	76.8
1986	73.3	80.0	71.1	78.3
1996	75.5	81.2	72.8	79.1
2000	76.2	81.6	73.9	79.6
2025	78.8	83.2	76.9	81.6
2050	80.4	84.5	79.1	83.5
2075	82.0	85.8	81.0	85.1

Chart 26 Life Expectancy[1] at Age 65 (AR18 and SSA)



[1] For each calendar year shown, based on the mortality rates for that year (i.e. no subsequent mortality improvements).

Table 10 Life Expectancy[1] at Age 65 (AR18 and SSA)

	AR18 (Canada)		SSA (United States)	
Year	Male	Female	Male	Female
1966	13.8	16.8	12.9	16.3
1976	14.1	18.1	13.8	18.1
1986	15.0	19.3	14.5	18.7
1996	16.1	20.0	15.4	19.0
2000	16.5	20.1	15.9	19.2
2025	18.0	21.1	17.2	20.1
2050	19.1	22.1	18.6	21.5
2075	20.3	23.1	19.9	22.7

C. Impact of Mortality Improvement on CPP

The previous sections looked at historical mortality trends as well as mortality projections. In this section we show how mortality impacts on the CPP. In the context of the CPP, what are the consequences of contributors and beneficiaries living longer? The answer to that question is of primary importance for the future financial health of the Plan.

Surviving to Age 18

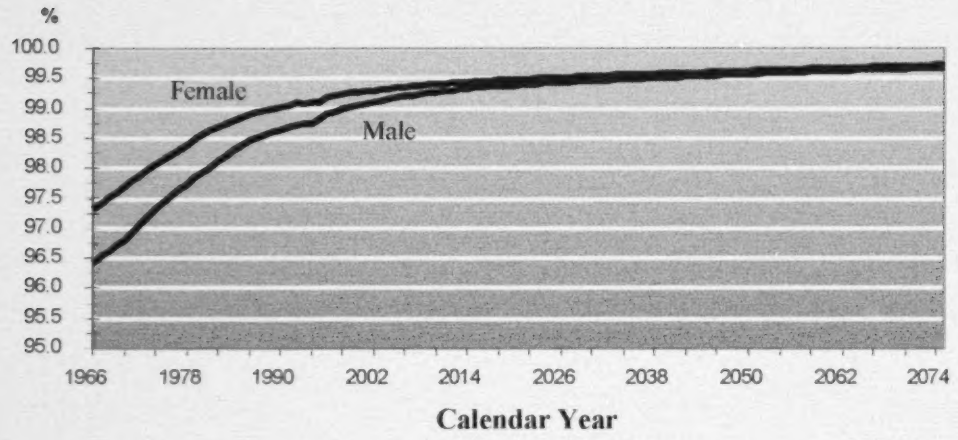
CPP contributory service begins at age 18 and ends at the age of retirement benefit uptake. The retirement benefit is then paid until death.

One of the important elements of the Plan is the number of contributors, which forms the basis for the financing of the Plan together with investment income. The future number of contributors relies on both fertility and immigration. With respect to fertility a newborn must reach age 18 to become a contributor. By looking at past statistics and using the mortality projections of the Eighteenth CPP Actuarial Report, the evolution of the probability of becoming a contributor (i.e. surviving from birth to age 18) can be traced. Chart 27 shows that probability by sex and calendar year. The probability of a newborn reaching age 18 has increased significantly over the past 40 years and is projected to continue increasing but at a much lower rate.

The gender gap in the probability of reaching age 18 is assumed to continue to narrow (see Chart 27). The difference of 0.93% in 1966 narrowed to only 0.22% by 2000 and is projected to virtually disappear by 2075, at which time nearly all newborns (99.68% of boys and 99.72% of girls) should reach age 18. These statistics show that great progress was made in the 20th century in reducing childhood mortality in Canada.

[1] For each calendar year shown, based on the mortality rates for that year (i.e. no subsequent mortality improvements).

Chart 27 Probability of Surviving from Birth to Age 18



Surviving from Age 18 to Age 65

CPP contributory service begins at age 18, from which time contributions on employment earnings become revenue to the CPP. Chart 28 shows the probability of surviving from age 18 to the normal retirement age of 65. The probability of surviving the contributory period has increased over time for men (from 72.1% in 1966 to 84.1% in 2000) and is projected to reach 90.8% by 2075. The increases have been only half as large for women, (from 84.5% in 1966 to 90.4% in 2000), with 93.8% projected for 2075. The gender gap in the probability of surviving from age 18 to age 65 was a substantial 12.4% in 1966 but is expected to narrow to only 3.0% by 2075.

Chart 28 Probability of Surviving from Age 18 to Age 65

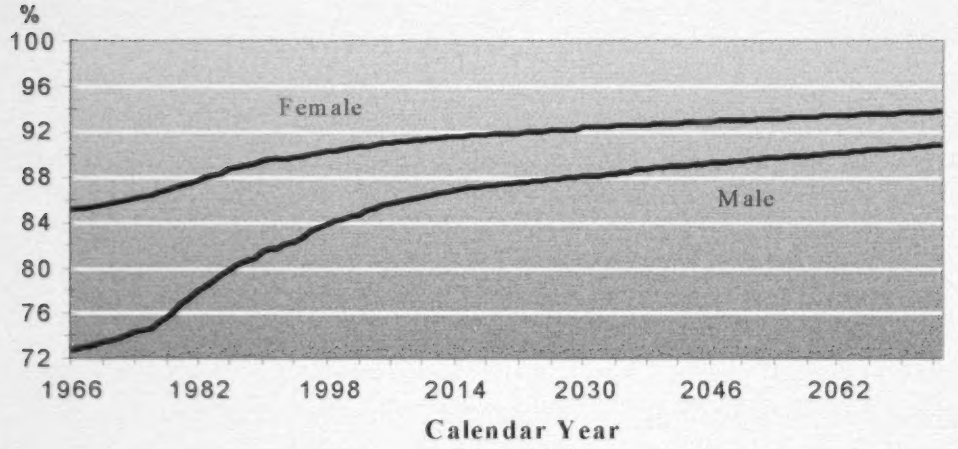
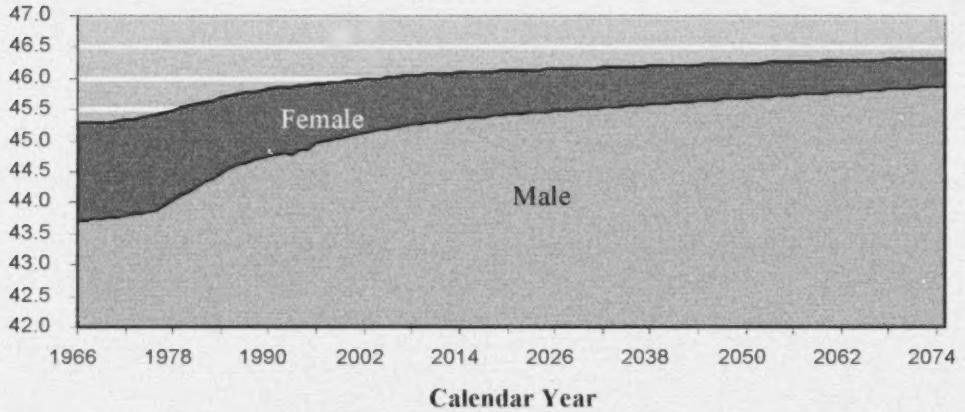


Chart 29 shows the average number of years a person is expected to live between the ages of 18 and 65. In 1966 a male was expected to live an average of 43.7 years out of a possible 47 years. In this case the maximum possible revenue gain for the plan was 3.3 more years of contributions.

Chart 29 Average Number of Years Lived Between the Ages 18 and 65



By way of comparison, a female was expected to live 45.2 years for a maximum possible gain of 1.8 years. In 2075 the average number of years lived between age 18 and age 65 is expected to be 45.9 years for males and 46.3 years for females. The gender gap in this statistic is therefore expected to narrow from 1.5 years in 1966 to 0.4 years in 2075. This situation is generally profitable for the CPP because as the life expectancy between ages 18 and 65 increases, so does the average number of years a person will contribute. However this effect is partly offset by more individuals reaching the normal retirement age and becoming beneficiaries.

Surviving After Age 65

Upon attaining the normal retirement age of 65[1], a CPP contributor becomes eligible for a retirement benefit. Since retirement benefits represent a large portion of total CPP benefits, it is not surprising that the number of years the retirement benefits will be paid has a great impact on the Plan financial status. As an example a sensitivity test done under the Eighteenth CPP Actuarial Report shows that doubling the assumed mortality improvements (adding around 1.5 to 2 years to the life expectancy at age 65) would increase the contributory rate by as much as 2% (contribution rate of 10.0% versus only 9.8% under AR18). Charts 30 and 31 show, for each sex, the probability of receiving a CPP retirement benefit up to selected ages from 70 to 100.

[1] For simplicity we ignore the reduced benefit available from age 60 onward.

Chart 30 Probability of Surviving from Age 65 to Specified Age for Male

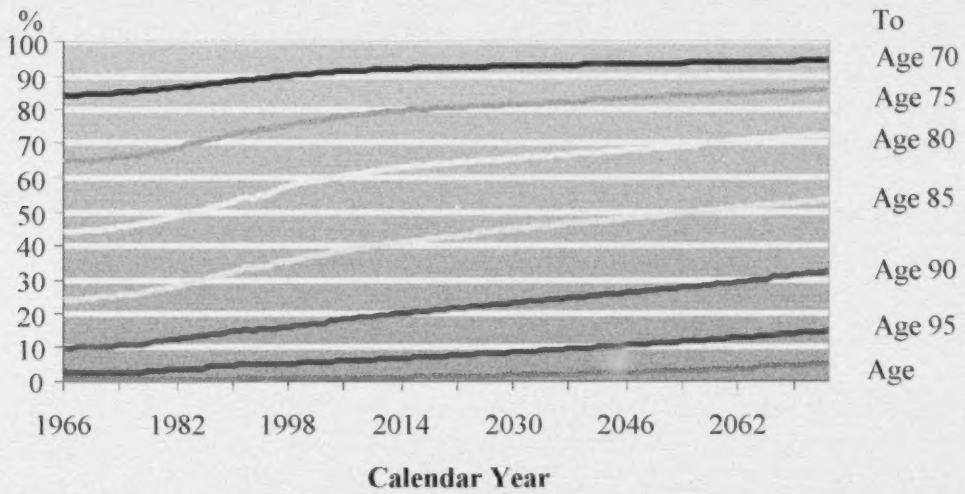


Chart 31 Probability of Surviving from Age 65 to Specified Age for Female

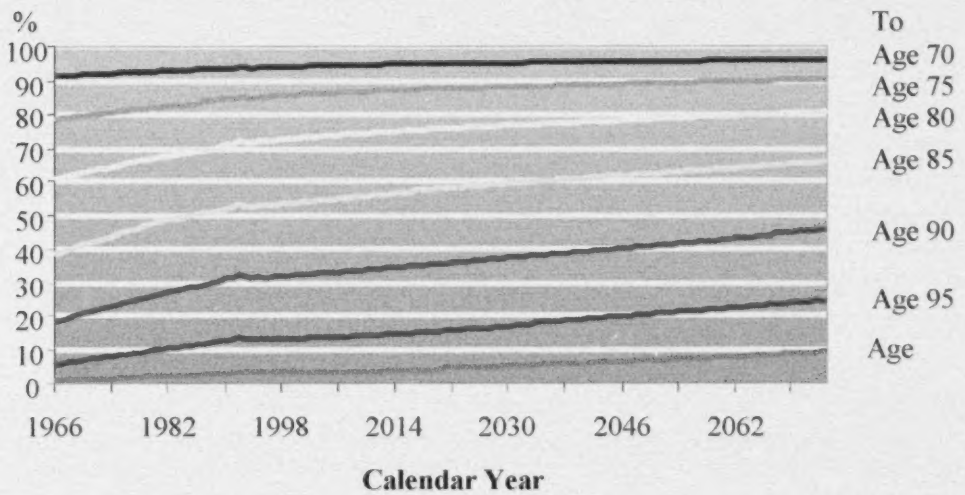


Table 11 presents the probability distribution by sex for the length of the retirement pension payment period for a 65-year-old person. Charts 32 and 33 present the probability of dying at a specified age for a retiree age 65. These charts show the shift to the right of the bulk of the probability curve as mortality improves during the century ending in 2075. Table 11 also shows that the average length of time beneficiaries receive their benefits has substantially increased since the inception of the plan in 1966. In 1966 male beneficiaries were most likely to receive a retirement benefit for 10 to 15 years and females for 15 to 20 years. In the future males will most likely receive retirement benefits for approximately 20 years while females will most likely receive benefits for 20 to 25 years. The difference by gender is assumed to decrease slightly in the future. On average, in 1966 male beneficiaries received 13.9 years of payment, which was 3.1 years less than females (17.0 years). In 2075 the difference between males and females is reduced to 2.8 years, with 20.4 years for males and 23.2 years for females.

Chart 32 Probability of Dying at Specified Age for Male Age 65

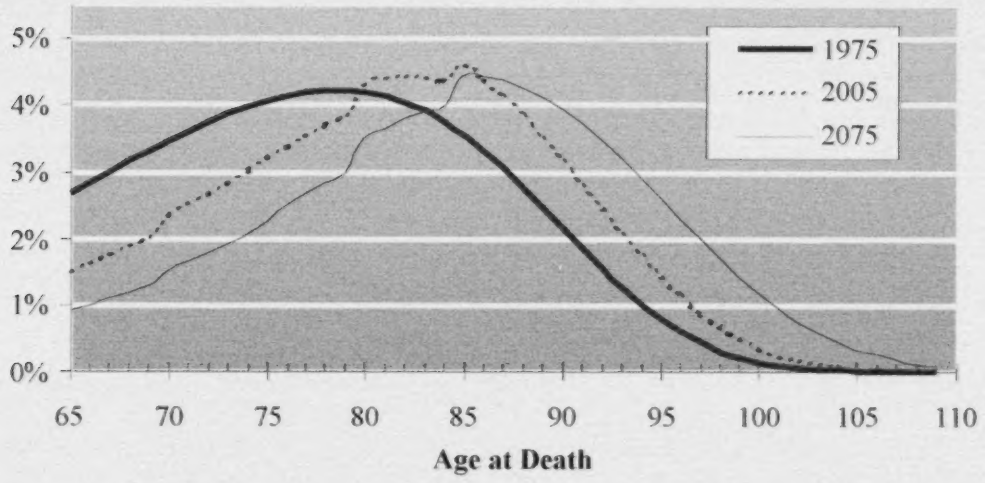


Chart 33 Probability of Dying at Specified Age for Female Age 65

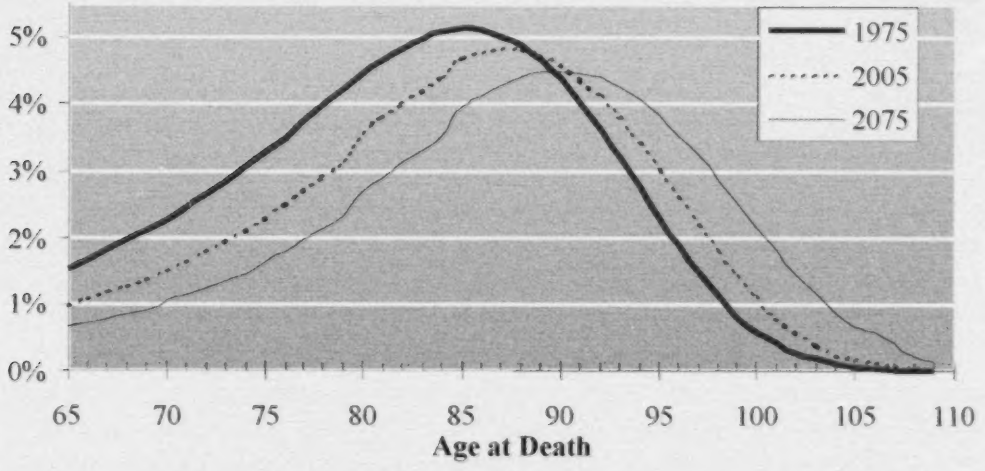


Table 11 Length of Retirement Benefit Payment Period

	Calendar Year Mortality							
Male Age 65	**1966**	**1975**	**1985**	**1995**	**2005**	**2025**	**2050**	**2075**
Payment Period in Years	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**
0-5	15.9	14.9	12.9	10.6	8.8	7.3	6.3	5.5
5-10	19.1	18.6	16.9	15.1	13.4	11.6	10.2	8.9
10-15	21.3	20.8	20.2	19.0	17.7	16.2	14.7	13.2
15-20	19.9	20.0	20.4	21.4	21.9	21.3	20.2	18.8
20-25	14.2	15.1	16.4	18.5	20.5	21.7	21.8	21.6
25-30	7.1	7.8	9.4	10.7	12.2	14.2	15.8	17.1
30-35	2.2	2.3	3.2	3.9	4.6	6.1	8.0	10.0
More than 35 years	0.4	0.3	0.6	0.8	1.0	1.7	3.0	4.9
Expectancy at 65 (Avg. number of years)	13.9	14.3	15.2	16.2	17.1	18.2	19.3	20.4
Female Age 65	**1966**	**1975**	**1985**	**1995**	**2005**	**2025**	**2050**	**2075**
Payment Period in Years	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**
0-5	8.8	7.8	6.8	6.1	5.5	4.8	4.2	3.7
5-10	12.8	11.3	10.0	9.0	8.3	7.5	6.7	5.9
10-15	18.1	16.0	14.4	13.2	12.7	11.7	10.5	9.5
15-20	22.1	20.5	19.0	18.7	18.7	17.7	16.3	15.0
20-25	20.5	21.2	21.3	21.7	22.3	22.3	21.5	20.5
25-30	12.6	15.4	17.4	18.4	19.0	19.9	20.6	20.9
30-35	4.3	6.5	8.6	9.9	10.3	11.8	13.7	15.4
More than 35 years	0.7	1.4	2.4	3.0	3.2	4.4	6.5	9.1
Expectancy at 65 (Avg. number of years)	17.0	18.2	19.3	20.0	20.4	21.2	22.2	23.2

IV. CPP Retirement Beneficiary Mortality

A. Introduction

Between triennial CPP Actuarial Reports, we conduct various experience studies. One of them is the mortality study of CPP beneficiaries. While one could assume that the mortality of CPP beneficiaries should be close to the mortality of the general population, there are some interesting trends and results peculiar to CPP beneficiaries. This section presents the methodology and results of our study on the mortality of retirement beneficiaries by level of pension. One of the goals of this study is to develop mortality adjustment factors that reflect differences between retirement beneficiary mortality and general population mortality.

B. Benefit Eligibility

A person aged 60 or over with contributory earnings in at least one past calendar year becomes eligible for a retirement pension upon application. An applicant for a retirement pension that becomes payable before the age of 65 must have wholly or substantially ceased to be engaged in paid employment or self-employment. A person ceases to contribute to the CPP once a retirement pension becomes payable or, in any event, after attaining age 70.

C. Retirement Benefit Calculation

The initial amount of monthly retirement pension is based on the history of pensionable earnings over the entire contributory period. The retirement pension is equal to 25% of the average of the Year's Maximum Pensionable Earning (YMPE) for the year of retirement and the four preceding years, adjusted to take into account the contributor's pensionable earnings. For this purpose the contributor's pensionable earnings for any given month are indexed by the ratio of the aforementioned five-year average YMPE to the YMPE for the year to which the given month belongs. Months of low pensionable earnings may be excluded from the calculation by reason of:

- pensions commencing after age 65;
- disability;
- the child-rearing dropout for a child less than seven years of age; and
- the general 15% dropout provision.

D. Description of Data

Human Resources Development Canada (HRDC) provided us with a 31 December 2000 extract of the CPP Master Benefit File, which contains information on all CPP benefits paid in each month since 1966 when the CPP was established. From the extract we took all the data covering the nine-year period (from January 1992 to December 2000) selected for our study. We validated each data record and found only 0.1% of them to have incorrect or missing data; these

records were discarded. The study included 761,000 deaths and 21,493,200 life-years of exposure.

The recent 1995-1997 Life Tables for Canada (LTC) published by Statistics Canada, present a demographic model that portrays in a clear and concise manner the mortality experience of the general Canadian population and permits one to derive comparative measures of expected longevity. The tables were produced using the age-sex-specific mortality rates for Canada that prevailed over the period 1995-1997.

Each beneficiary was classified according to the level of pension expressed as a percentage of the maximum retirement pension applicable to the year of emergence of the benefit. For this purpose four classes were established, ranging from 0% to 25% at the lower end and 75% to 100% at the upper end.

Note that in this section the term "general population" will be used to refer to the population of Canada less Québec, as this is the population covered by the CPP.

E. Methodology

1. Mortality Rates

The mortality rate for a given age last birthday in any given calendar year (CY) is the probability that a person at that age on 1 January dies by 31 December. Mortality rates (q_{age}) are calculated for each calendar year by attained age, sex and level of pension by simply dividing the relevant number of deaths (d_{age}) by the corresponding total exposures (E_{age}).

$$q_{age}^{CY} = \frac{d_{age}^{CY}}{E_{age}^{CY}}$$

The mortality rates of CPP retirement beneficiaries determined in such a manner are then compared to the general population mortality rates (based on the 1995-1997 LTC). Since CPP retirement beneficiaries represent a large portion of the general population, the observed mortality rates should be comparable to the general population mortality rates. However, to make the comparison, we need to put the data on the same basis, i.e. mortality rates centered in 1996. For this purpose the CPP retirement beneficiary mortality level considered to apply to 1996 was obtained by using an exponential regression to remove the random year-to-year fluctuations over the experience period 1992-2000. This was done for each age, sex and level of pension, including all levels of pension combined.

2. Deaths

The first step in the calculation of experience mortality rates is to count the number of deaths (d_{age}) by calendar year and age for each of the four levels of pensions.

3. Exposures

The second step in the calculation of the retirement beneficiary mortality rates is to calculate mortality exposures (E_{age}) by calendar year and attained age last birthdays for each of the four levels of pension. The approach used was seriatim (i.e. each individual separately) approach as opposed to grouped. Exposures are interpreted as the number of persons exposed to the risk of death during the period examined. The methodology used for the calculation of exposures is based on the Balducci convention whereby a person contributes exposure in respect of the portion of the year remaining at the time of death. The exposures including Balducci add-ons, are then tabulated for each of the cells established for the tabulation of the deaths. The exposures for 1996 only are presented in Charts 34 and 35 and Tables 12 and 13.

Chart 34 Male CPP Retirement Beneficiary Exposures (by Level of Pension – 1996)

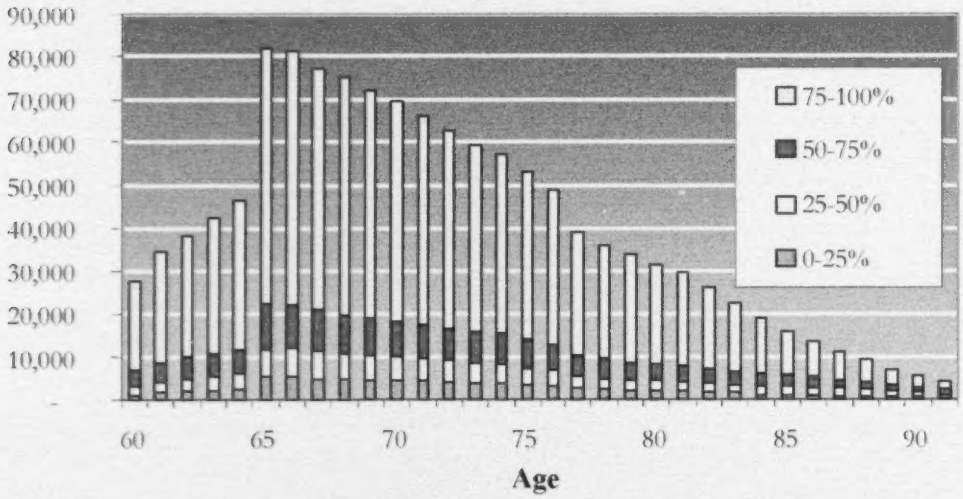


Table 12 Level of Pension of Male CPP Retirement Beneficiaries (1996)

	Level of Pension as Percentage of Maximum			
Age Group	**0-25%**	**25-50%**	**50-75%**	**75-100%**
60-64	4.5%	7.8%	12.9%	74.7%
65-69	6.5%	7.9%	12.2%	73.4%
70-74	6.7%	7.7%	12.2%	73.5%
75-79	6.3%	7.5%	12.6%	73.6%
80+	7.6%	11.1%	15.9%	65.3%

Chart 35 Female CPP Retirement Beneficiary Exposures (by Level of Pension – 1996)

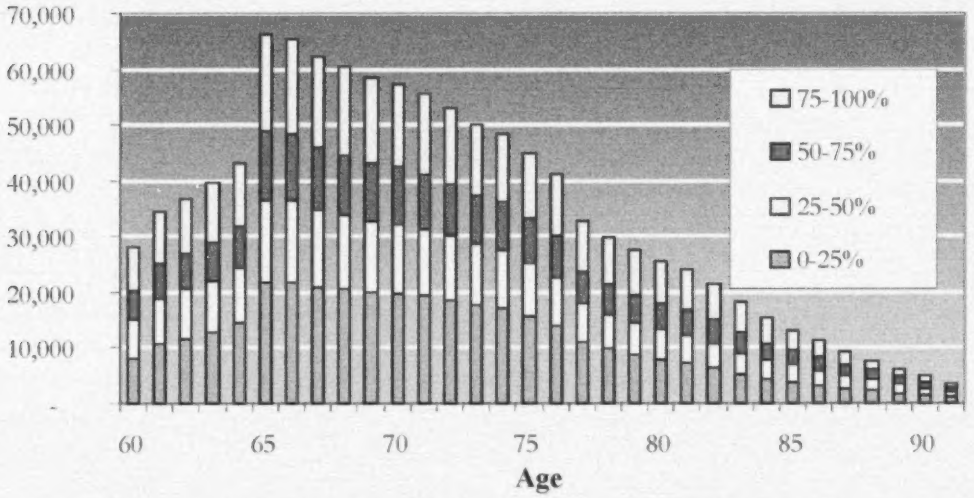


Table 13 Level of Pension of Female CPP Retirement Beneficiaries (1996)

	Level of Pension as Percentage of Maximum			
Age Group	**0-25%**	**25-50%**	**50-75%**	**75-100%**
60-64	31.7%	23.6%	17.7%	27.0%
65-69	33.5%	22.1%	18.0%	26.3%
70-74	35.0%	21.7%	17.8%	25.5%
75-79	33.5%	21.3%	18.2%	27.0%
80+	29.5%	22.7%	20.4%	27.3%

4. Mortality Ratios

The first step was to compare the overall retirement beneficiary mortality rates (i.e. all levels of pension combined) to the general population mortality rates[1]. The ratios obtained were then graduated and multiplied by the general population mortality rates to obtain graduated mortality rates applicable to retirement beneficiaries as a whole.

The next step was to compare the mortality rates for each level of benefit to the graduated overall mortality rates. The mortality ratios so obtained were then multiplied by the graduated overall ratios to obtain the mortality ratio relative to the general population for each level of pension. The latter ratios were also graduated. The final mortality rates by level of pension were obtained from the multiplication of these graduated ratios by the general population mortality rates.

[1] Mortality rates for the general population of Canada less Québec were derived from Life Tables for Canada using the 1996 populations of Canada and Québec as weights.

Finally we assumed that retirement beneficiary mortality rates eventually converge to the mortality of the general population; accordingly ratios for ages over 95 were interpolated between the ratio at age 91 and the assumed ratio of 1.0 at age 109. Mortality rates for ages 60 to 64 were graduated separately because they show different trends due to the exclusion of CPP disability beneficiaries at those ages.

F. Results

1. Results by Sex

Charts 36 and 37 show the 1996 mortality rates derived for CPP retirement beneficiaries and the female rates as a proportion of the male rates, respectively. Chart 37 confirms that the gender difference in mortality rates decreases with age. At age 60 female mortality rates are 63% of male rates. The ratio decreases to a low of 51% at age 67 and gradually increases thereafter to 77% by age 95 and 100% by age 109.

Chart 38 is particularly useful because it expresses CPP retirement beneficiary mortality rates relative to the rates for the general population. Several interesting observations may be made in respect of the information presented therein, as follows:

(i) For both males and females, retirement beneficiary mortality rates at ages 60 to 64 are significantly lower than for the general population. This is because retirement beneficiaries between the ages of 60 and 64 do not include disability beneficiaries and are thus somewhat healthier than the general population. At age 65 disability beneficiaries automatically become retirement beneficiaries and the mortality ratio rises accordingly.

(ii) For males, somewhat surprising, mortality rates after age 65 are higher than for the general population. This is since male retirement beneficiaries, who comprise 97% of the male population at age 65 and over, are generally thought to have a higher socio-economic status than the remaining 3% of the male population, and should therefore have lower mortality than the general male population. Part of the answer could lie in the difference between the census survey data used in constructing the Life Tables for Canada and our administrative data.

(iii) However, this pattern is not observed with female retirement beneficiaries, whose mortality rates are lower than general population rates at each age from 65 onward. This can be explained by the socio-economic factors mentioned earlier.

(iv) The difference between retirement beneficiary and general population mortality rates is larger for females than for males. At age 60 female rates are 36% lower while male rates are 39% lower. At age 65 female rates are still 9% lower whereas male rates are actually 1% higher. After age 65 female rates gradually approach general population mortality rates but always remain

lower; male rates remain higher than general population rates but are assumed to gradually converge to general population rates by age 109.

Chart 36 CPP Retirement Beneficiary Mortality Rates - 1996 (annual deaths per thousand persons)

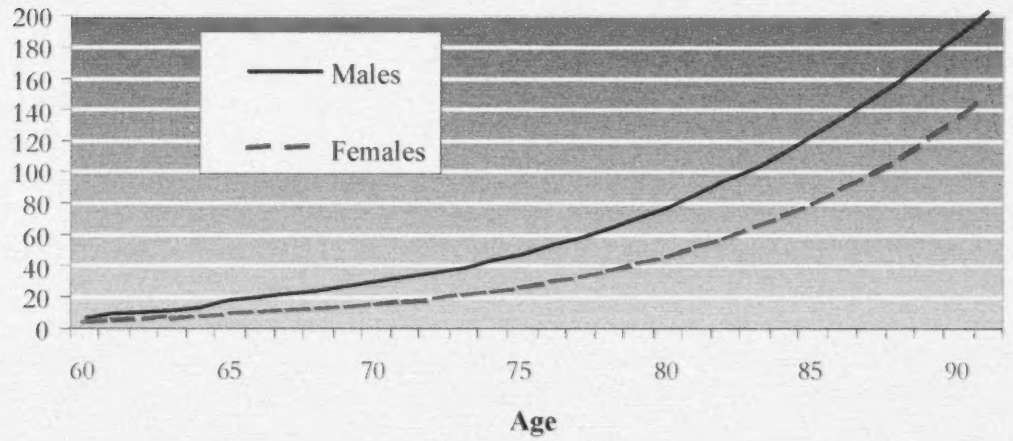


Chart 37 Female/Male Ratio of CPP Retirement Beneficiary Mortality

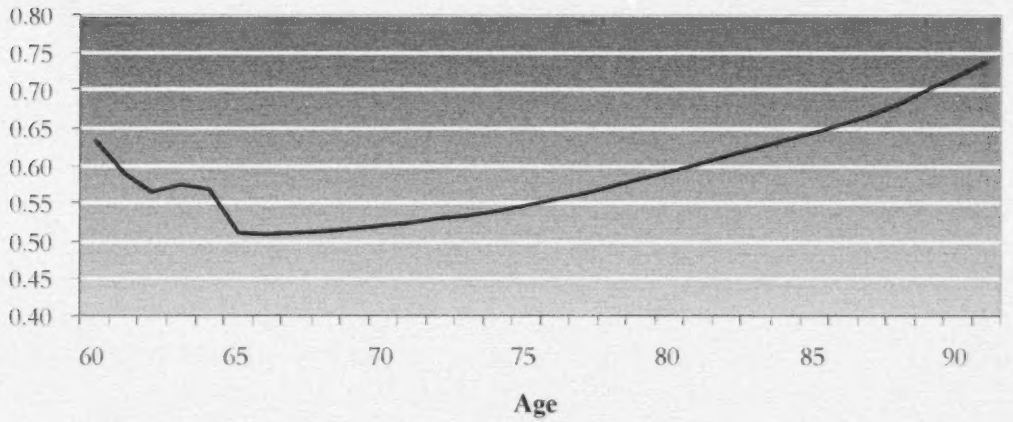
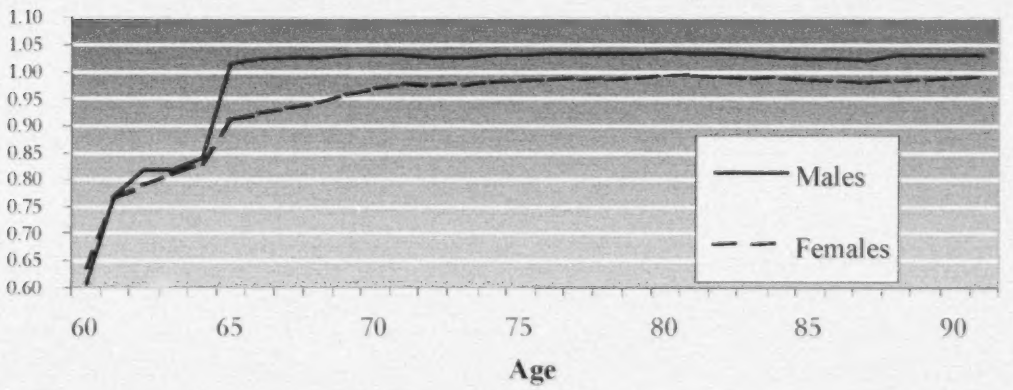


Chart 38 CPP Retirement Beneficiary Mortality Ratios Relative to General Population



2. Results by Level of Retirement Pension

As shown in Chart 34 and Table 12, males are mostly distributed in the high pension class, i.e. beneficiaries with a retirement pension between 75% and 100% of the maximum. Females are more evenly distributed among the other pension classes (see Chart 35 and Table 13).

Charts 39 and 40 and Table 14 show the mortality curves by level of pension. The pattern by level of pension is clearly recognizable; the higher the level of pension, the lower the mortality curve. The reason that individuals with high pensions have lower mortality is likely that their socio-economic background and education makes them less exposed to some mortality risks. With universal access to medical care in Canada, lack of medical care can be ruled out as a significant factor.

Charts 41 and 42 and Table 15 show the mortality ratios relative to the general population by level of pension. There is a noticeable increase in the mortality ratios at age 65, particularly for the higher pension classes; this is attributable to the automatic conversion of disability beneficiaries to retirement beneficiaries at that age.

For all levels of pension combined, male retirement beneficiaries generally have slightly higher mortality rates than the general population (mortality ratios in the vicinity of 1.025). This is because the excess mortality of males with less than 75% of the maximum pension is only partially offset by the light mortality (ratios generally under 1.000) of those with the highest pensions

For all levels of pension combined, female retirement beneficiaries generally have slightly lower mortality rates than the general population. The mortality ratio of 0.911 at age 65 rises gradually to reach 1.000 by age 109. The overall light mortality is attributable to the light mortality of females with at least 25% of the maximum pension only partially offset by the excess mortality (ratios as high as 1.072) of those with the lowest pensions.

Chart 39 Male CPP Retirement Beneficiary Mortality (by Level of Pension – 1996) (annual deaths per thousand persons)

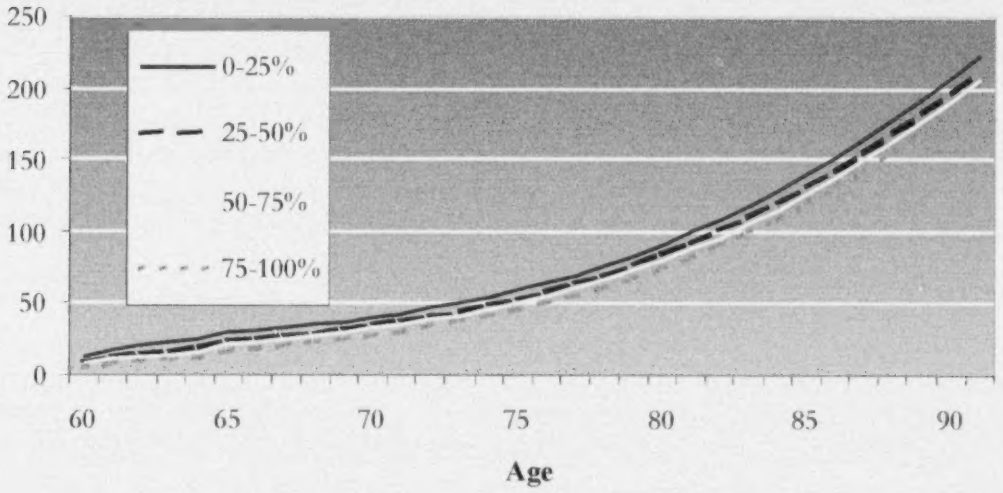


Chart 40 Female CPP Retirement Beneficiary Mortality (by Level of Pension – 1996) (annual deaths per thousand persons)

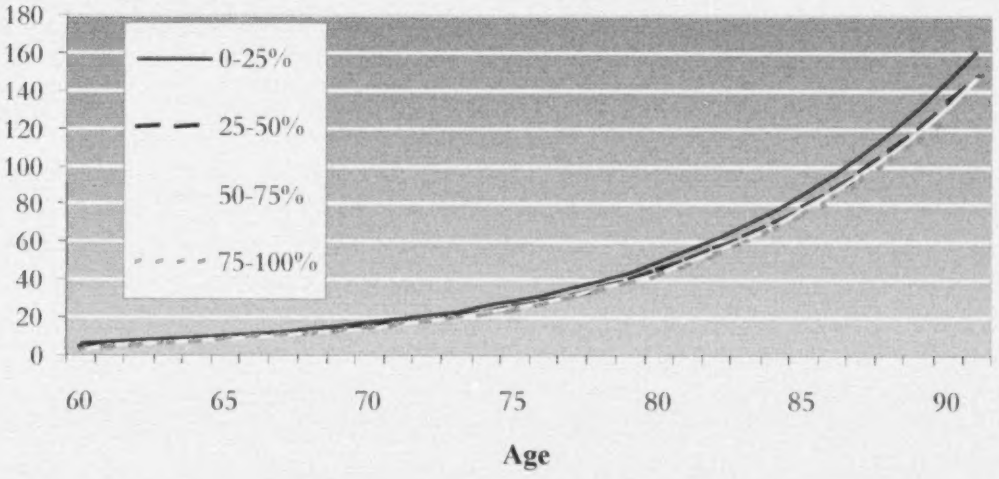


Chart 41 Male CPP Retirement Beneficiary Mortality Ratios (by Level of Pension – 1996)

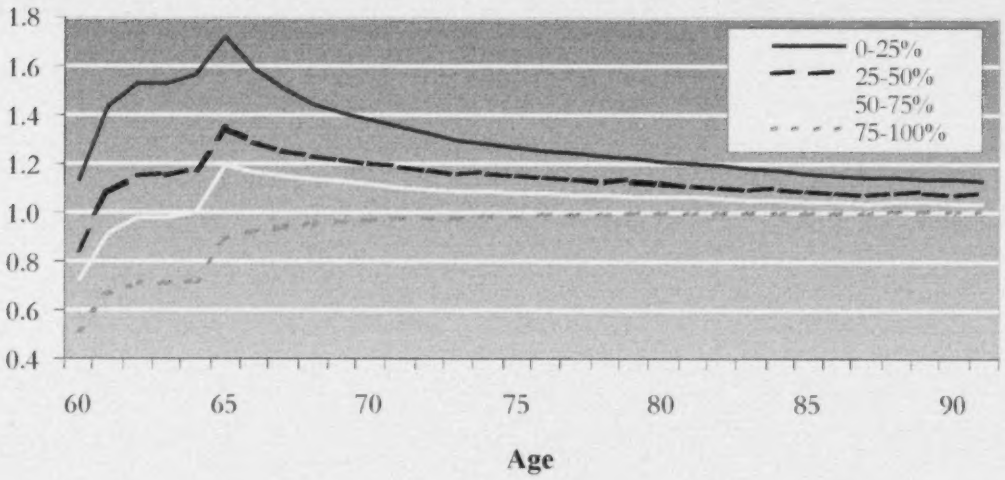


Chart 42 Female CPP Retirement Beneficiary Mortality Ratios (by Level of Pension – 1996)

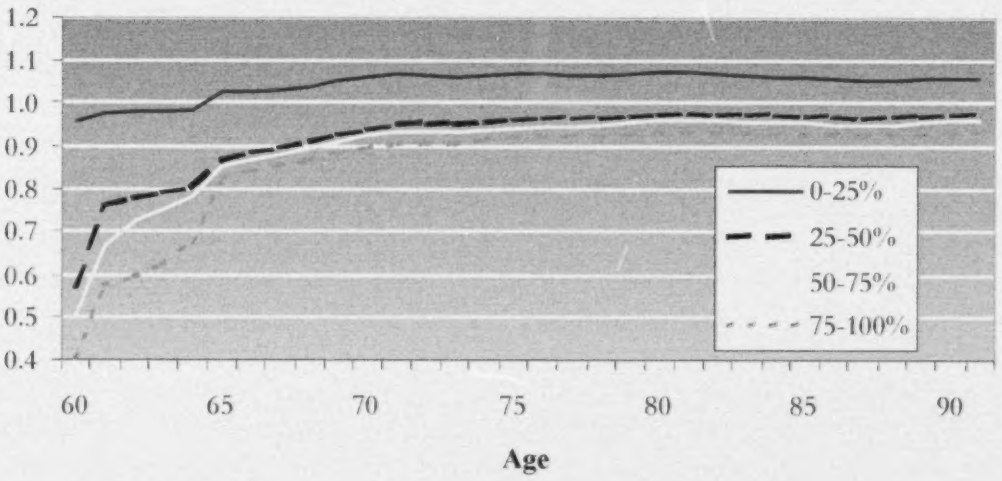


Table 14 CPP Retirement Beneficiary Mortality Rates (by Level of Pension – 1996) (annual deaths per thousand persons)

	Male						Female					
	Level of Pension as % of Maximum						Level of Pension as % of Maximum					
	General Pop.	All	0-25%	25-50%	50-75%	75-100%	General Pop.	All	0-25%	25-50%	50-75%	75-100%
60	10.7	6.5	12.1	9.1	7.8	5.6	6.5	4.1	6.2	3.7	3.2	2.6
61	11.9	9.1	17.1	12.8	10.9	7.9	7.0	5.4	6.9	5.3	4.7	4.0
62	13.2	10.8	20.1	15.1	12.9	9.4	7.7	6.1	7.6	6.0	5.6	4.6
63	14.6	11.9	22.3	16.8	14.3	10.4	8.5	6.8	8.3	6.7	6.4	5.3
64	16.1	13.5	25.3	19.0	16.2	11.8	9.3	7.7	9.1	7.4	7.2	6.3
65	17.9	18.1	30.7	24.0	21.3	16.1	10.1	9.2	10.4	8.8	8.6	8.4
66	19.7	20.2	31.2	25.4	23.0	18.3	11.1	10.3	11.5	9.8	9.7	9.4
67	21.8	22.3	32.8	27.4	25.0	20.5	12.2	11.4	12.6	11.0	10.8	10.4
68	24.0	24.7	34.8	29.6	27.2	22.8	13.4	12.6	14.0	12.2	12.0	11.6
69	26.4	27.2	37.2	32.0	29.7	25.3	14.7	14.0	15.4	13.6	13.3	12.9
70	29.0	29.9	39.9	34.8	32.4	27.9	16.1	15.5	17.1	15.1	14.8	14.4
71	31.9	32.8	43.0	37.8	35.3	30.8	17.6	17.2	18.8	16.7	16.5	16.0
72	35.1	36.1	46.4	41.1	38.5	34.0	19.6	19.1	20.8	18.6	18.3	17.7
73	38.6	39.6	50.2	44.8	42.1	37.5	21.7	21.1	23.1	20.6	20.3	19.7
74	42.4	43.5	54.3	48.8	46.0	41.3	24.0	23.5	25.6	22.9	22.6	21.9
75	46.5	47.8	59.0	53.3	50.3	45.5	26.7	26.1	28.4	25.6	25.2	24.4
76	51.1	52.6	64.1	58.2	55.2	50.2	29.7	29.2	31.7	28.6	28.1	27.3
77	56.2	58.0	69.9	63.8	60.5	55.4	33.2	32.6	35.4	32.0	31.5	30.5
78	61.9	63.9	76.3	69.9	66.5	61.2	37.1	36.5	39.6	35.8	35.2	34.2
79	68.3	70.4	83.3	76.7	73.0	67.6	41.5	40.9	44.3	40.1	39.5	38.3
80	75.1	77.6	91.0	84.1	80.2	74.6	46.3	45.8	49.6	45.0	44.3	43.0
81	82.7	85.3	99.3	92.1	88.0	82.2	51.7	51.3	55.4	50.4	49.6	48.2
82	91.0	93.8	108.2	100.8	96.4	90.5	58.0	57.4	62.0	56.4	55.6	53.9
83	100.2	102.9	117.9	110.2	105.6	99.5	65.0	64.1	69.1	63.1	62.1	60.3
84	110.1	112.8	128.4	120.3	115.4	109.2	72.5	71.5	77.0	70.3	69.2	67.2
85	120.7	123.5	139.7	131.3	126.1	119.7	80.9	79.5	85.6	78.3	77.1	74.8
86	132.1	135.0	151.8	143.0	137.6	131.1	90.2	88.4	95.1	87.1	85.8	83.2
87	144.3	147.3	164.6	155.5	149.7	143.2	100.6	98.3	105.7	96.9	95.4	92.6
88	156.0	160.3	178.1	168.7	162.6	156.0	111.6	109.4	117.5	107.8	106.2	103.1
89	169.2	174.0	192.3	182.6	176.2	169.5	123.9	121.8	130.7	120.1	118.3	114.8
90	183.3	188.4	207.1	197.1	190.4	183.7	137.5	135.5	145.3	133.6	131.7	127.8
91	198.0	203.4	222.5	212.3	205.2	198.6	152.4	150.3	161.2	148.3	146.1	141.8
92	213.4	218.8	238.1	227.7	220.3	213.8	168.8	166.8	178.7	164.6	162.2	157.5
93	240.2	245.4	265.8	254.7	246.7	240.1	183.7	181.7	194.6	179.4	176.8	171.6
94	259.2	264.2	284.9	273.6	265.2	258.8	200.7	198.7	212.7	196.3	193.4	187.8
95	279.1	284.0	304.9	293.4	284.7	278.4	218.6	216.7	231.8	214.1	211.0	204.8
96	300.0	304.7	325.8	314.2	305.5	299.3	237.5	235.6	250.8	233.0	229.8	223.6
97	321.7	326.3	347.2	335.8	327.2	321.0	257.3	255.5	270.6	252.8	249.6	243.4
98	344.4	348.8	369.4	358.2	349.8	343.7	278.0	276.2	291.2	273.5	270.4	264.2
99	367.9	372.2	392.2	381.3	373.1	367.2	299.5	297.8	312.5	295.1	292.1	286.0
100	392.2	396.3	415.5	405.1	397.2	391.6	321.9	320.2	334.3	317.6	314.6	308.8
101	417.3	421.3	439.4	429.5	422.1	416.7	344.9	343.3	356.8	340.8	338.0	332.5
102	443.1	446.9	463.6	454.5	447.5	442.6	368.6	367.0	379.7	364.8	362.2	357.0
103	469.6	473.2	488.3	479.9	473.6	469.1	392.8	391.3	403.0	389.4	387.0	382.2
104	496.7	500.1	513.1	505.8	500.2	496.2	417.6	416.1	426.6	414.5	412.4	408.2
105	524.2	527.5	538.1	531.9	527.2	523.8	442.8	441.4	450.4	440.2	438.4	434.8
106	553.2	556.2	564.1	559.2	555.5	552.9	468.1	466.8	474.1	466.0	464.6	461.8
107	581.6	583.3	589.3	585.9	583.3	581.4	493.5	492.9	497.8	492.1	491.1	489.1
108	610.4	611.1	614.4	612.6	611.2	610.3	519.1	518.8	521.3	518.3	517.8	516.8
109	639.4	639.4	639.4	639.4	639.4	639.4	544.6	544.6	544.6	544.6	544.6	544.6

Table 15 CPP Retirement Beneficiary Mortality Ratios (by Level of Pension – 1996)

	Male					Female				
	Level of Pension as % of Maximum					Level of Pension as % of Maximum				
	All	0-25%	25-50%	50-75%	75-100%	All	0-25%	25-50%	50-75%	75-100%
60	0.605	1.128	0.849	0.724	0.526	0.636	0.955	0.569	0.500	0.404
61	0.770	1.436	1.081	0.921	0.669	0.764	0.974	0.758	0.665	0.574
62	0.817	1.524	1.147	0.977	0.710	0.787	0.979	0.778	0.725	0.593
63	0.818	1.526	1.149	0.979	0.711	0.808	0.982	0.789	0.752	0.622
64	0.839	1.564	1.178	1.003	0.729	0.830	0.985	0.800	0.779	0.675
65	1.013	1.719	1.344	1.194	0.899	0.911	1.029	0.868	0.851	0.824
66	1.022	1.582	1.290	1.167	0.926	0.920	1.029	0.884	0.868	0.840
67	1.025	1.503	1.255	1.147	0.939	0.929	1.032	0.896	0.880	0.853
68	1.026	1.448	1.230	1.133	0.948	0.940	1.039	0.910	0.894	0.866
69	1.028	1.407	1.212	1.123	0.956	0.954	1.051	0.925	0.909	0.882
70	1.030	1.376	1.199	1.115	0.963	0.967	1.062	0.939	0.924	0.895
71	1.030	1.348	1.185	1.107	0.967	0.974	1.068	0.948	0.933	0.904
72	1.027	1.320	1.170	1.097	0.968	0.974	1.065	0.949	0.933	0.905
73	1.025	1.298	1.159	1.090	0.970	0.973	1.062	0.949	0.934	0.906
74	1.027	1.283	1.152	1.086	0.975	0.977	1.065	0.954	0.939	0.911
75	1.029	1.269	1.146	1.083	0.979	0.981	1.067	0.959	0.944	0.915
76	1.030	1.255	1.140	1.080	0.983	0.983	1.068	0.962	0.947	0.919
77	1.032	1.243	1.135	1.077	0.986	0.983	1.066	0.963	0.947	0.919
78	1.032	1.232	1.130	1.074	0.989	0.984	1.066	0.964	0.949	0.920
79	1.032	1.220	1.124	1.070	0.990	0.987	1.068	0.968	0.953	0.925
80	1.033	1.211	1.120	1.068	0.993	0.991	1.072	0.973	0.958	0.929
81	1.032	1.200	1.113	1.064	0.994	0.992	1.072	0.975	0.960	0.931
82	1.030	1.189	1.107	1.059	0.994	0.990	1.068	0.972	0.958	0.929
83	1.027	1.177	1.100	1.054	0.993	0.987	1.064	0.970	0.956	0.927
84	1.025	1.167	1.093	1.049	0.992	0.986	1.062	0.969	0.955	0.926
85	1.024	1.158	1.088	1.045	0.992	0.984	1.059	0.968	0.953	0.925
86	1.022	1.149	1.083	1.042	0.992	0.981	1.055	0.966	0.951	0.923
87	1.021	1.140	1.077	1.037	0.992	0.977	1.051	0.963	0.948	0.920
88	1.027	1.141	1.081	1.042	1.000	0.981	1.053	0.967	0.952	0.924
89	1.028	1.136	1.079	1.041	1.002	0.983	1.055	0.969	0.955	0.927
90	1.028	1.130	1.075	1.039	1.002	0.985	1.057	0.972	0.957	0.929
91	1.028	1.124	1.072	1.037	1.003	0.986	1.057	0.973	0.959	0.931
92	1.025	1.116	1.067	1.032	1.002	0.988	1.059	0.975	0.961	0.933
93	1.022	1.107	1.060	1.027	1.000	0.989	1.059	0.977	0.962	0.934
94	1.019	1.099	1.056	1.023	0.998	0.990	1.060	0.978	0.964	0.936
95	1.018	1.093	1.051	1.020	0.998	0.991	1.060	0.979	0.965	0.937
96	1.016	1.086	1.048	1.019	0.998	0.992	1.056	0.981	0.968	0.941
97	1.014	1.079	1.044	1.017	0.998	0.993	1.052	0.982	0.970	0.946
98	1.013	1.073	1.040	1.016	0.998	0.994	1.047	0.984	0.973	0.950
99	1.012	1.066	1.037	1.014	0.998	0.994	1.043	0.985	0.975	0.955
100	1.011	1.060	1.033	1.013	0.998	0.995	1.039	0.987	0.978	0.959
101	1.010	1.053	1.029	1.011	0.999	0.995	1.034	0.988	0.980	0.964
102	1.009	1.046	1.026	1.010	0.999	0.996	1.030	0.990	0.983	0.968
103	1.008	1.040	1.022	1.009	0.999	0.996	1.026	0.991	0.985	0.973
104	1.007	1.033	1.018	1.007	0.999	0.997	1.022	0.993	0.988	0.977
105	1.006	1.026	1.015	1.006	0.999	0.997	1.017	0.994	0.990	0.982
106	1.006	1.020	1.011	1.004	0.999	0.997	1.013	0.996	0.993	0.986
107	1.003	1.013	1.007	1.003	1.000	0.999	1.009	0.997	0.995	0.991
108	1.001	1.007	1.004	1.001	1.000	0.999	1.004	0.999	0.998	0.995
109	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

3. Mortality Improvements and Life Expectancies

Annual mortality improvement rates for retirement beneficiaries were calculated over the period 1987-1996 by age group, sex and level of pension. As a comparison, Table 16 also shows the general population mortality improvement rates for the same period, as well as the ultimate annual improvement rate assumption used in the Eighteenth CPP Actuarial Report, i.e. the rates for 2021 and later (see Section II-C for a full discussion).

Over the period 1987 to 1996 the pattern of male retirement beneficiary mortality improvement by age group was the same as for the general population, but the amount of improvement was materially less. The same comments apply to female retirement beneficiaries.

Table 16 CPP Retirement Beneficiary Annual Mortality Improvement Rates

	Male			Female		
Age Group	General Population [1] (1987-96)	CPP Retirement Beneficiaries (1987-96)	18th CPP Actuarial Report (2021+)	General Population [1] (1987-96)	CPP Retirement Beneficiaries (1987-96)	18th CPP Actuarial Report (2021+)
60-64	2.67%	2.04%	0.60%	1.40%	1.09%	0.50%
65-69	2.03	1.67	0.60	0.95	0.73	0.50
70-74	1.82	1.36	0.60	1.07	0.59	0.50
75-79	1.45	1.22	0.55	0.87	0.44	0.50
80-84	0.79	0.54	0.55	0.56	-0.15	0.50
85-89	0.19	-0.27	0.55	-0.08	-1.00	0.50
90+	-	-	0.55	-	-	0.50

[1] Based on Life Tables for Canada (see Section III).

Tables 17 and 18 show life expectancies without future mortality improvements, based on the CPP retirement beneficiary mortality rates obtained for 1996 and on the comparable general population mortality rates. Male CPP life expectancies do not differ much from the general population life expectancies; they are slightly lower for each level of pension except the 75-100% level. In contrast, CPP females have higher life expectancies than the general population for levels of pension except for the 0-25% level.

From Table 17 we can also observe that males at age 60 with pensions between 75 to 100% of the maximum live about 16% longer (i.e. 2.9 years) than males with pensions between 0 and 25%. By age 65 the difference has narrowed a bit to 15% but at age 90 it is still 10%. For females (Table 18) the difference between the two levels of pension is much lower, being only 6% at age 60. By age 90 the difference increases to about 10%.

Table 17 Male CPP Retirement Beneficiary Life Expectancies[1]

	Level of Pension as % of Maximum					
Age	0-25%	25-50%	50-75%	75-100%	ALL	95-97 C-QLT
60	17.71	18.90	19.52	20.61	20.11	20.04
65	14.25	15.13	15.60	16.43	16.03	16.24
70	11.41	12.02	12.37	12.94	12.65	12.84
75	8.81	9.24	9.51	9.91	9.69	9.85
80	6.58	6.89	7.09	7.35	7.19	7.33
85	4.80	5.01	5.16	5.32	5.21	5.31
90	3.45	3.58	3.69	3.78	3.71	3.79

Table 18 Female CPP Retirement Beneficiary Life Expectancies[1]

	Level of Pension as % of Maximum					
Age	0-25%	25-50%	50-75%	75-100%	ALL	95-97 C-QLT
60	23.72	24.68	24.85	25.17	24.50	24.12
65	19.53	20.33	20.45	20.69	20.17	19.98
70	15.65	16.34	16.45	16.67	16.21	16.09
75	12.11	12.70	12.80	12.99	12.59	12.50
80	9.01	9.50	9.58	9.75	9.41	9.34
85	6.46	6.85	6.92	7.06	6.78	6.71
90	4.48	4.78	4.83	4.94	4.73	4.69

[1] Based on 1996 mortality rates (i.e. no subsequent mortality improvements).

V. CPP Survivor Beneficiary Mortality

A. Introduction

After retirement, one of the major CPP benefits paid is the survivor benefit. Survivor benefits cover CPP members from age 18 to their death. Just as for retirement beneficiary mortality, survivor beneficiary mortality trends diverge somewhat from the general population. This section presents the methodology and results of our study on the mortality of CPP survivor beneficiaries. One of the goals of this study is to develop mortality ratios for CPP survivor beneficiaries relative to the general population. Again the term "general population" will be used to refer to the population of Canada less Québec as this is the population covered by the CPP.

B. Benefit Eligibility

The surviving spouse of a contributor is eligible for a survivor benefit if the following three conditions are met as at the date of the contributor's death.

- If the surviving spouse was not legally married to the deceased contributor, they must have cohabited for not less than one year immediately before the death of the contributor.

- The deceased contributor must have made contributions for ten calendar years or, if lesser, one-third of the number of years included wholly or partly in his or her contributory period, but not less than three years.

- The surviving spouse must have dependent children, be disabled or be at least 35 years of age. A surviving spouse with dependent children means a surviving spouse who wholly or substantially maintains a child of the deceased contributor where the child is under age 18, or aged 18 or over but under age 25 and attending school full-time, or aged 18 or over and disabled, having been disabled without interruption since attaining age 18 or the time of the contributor's death, whichever occurred later.

C. Survivor Benefit Calculation

The initial amount of monthly survivor benefit depends on the age of the survivor, the survivor's disability status and the presence of dependent children. If a surviving spouse is receiving a retirement pension or a disability benefit, the monthly amount of the surviving spouse benefit may be reduced. The following five cases are relevant.

1. New Survivor Age 45 to 65

The amount of monthly benefit payable until the surviving spouse attains age 65 is composed of two portions: a flat-rate benefit depending only on the year in which the survivor benefit is payable, and an earnings-related benefit depending initially only on the contributor's record of pensionable earnings as at the date of death. The earnings-related portion is equal to 37.5% of the retirement pension accrued by the deceased contributor, except that no actuarial adjustment applies.

2. New Survivor Under Age 45

An eligible spouse, without dependent child(ren) and not disabled, who becomes widowed before age 35 is not entitled to a survivor benefit (but may be entitled at a later date; see 4 and 5 below). If such survivor is between 35 and 45 years of age she or he is entitled to an amount of benefit calculated as described in 1 above but reduced (until the earlier of disablement or attainment of age 65) by $1/120^{th}$ of such amount for each month by which the new survivor's age falls short of 45 years.

3. New Survivor Under Age 45 with Dependent Children

An eligible spouse who becomes widowed while aged less than 45 years and with dependent children is entitled to a survivor benefit calculated as in 1 above. Under certain circumstances the survivor benefit is reduced or even discontinued when the last dependent child loses such status. If the survivor is then under age 45 and not disabled, she or he is considered to be a new survivor entitled only to the benefit in accordance with 2 above.

4. Disabled Survivor Under Age 65

An eligible surviving spouse under age 65 is entitled to a survivor benefit calculated as in 1 above whenever she or he is disabled. If the disabled surviving spouse recovers from disability before age 45, the survivor benefit is discontinued or reduced to what it would be for a new survivor in accordance with 2 above.

5. Survivor Age 65 or Over

At age 65, or upon widowhood at a later age, an eligible surviving spouse is entitled to a monthly benefit equal to 60% of the retirement pension accrued by the deceased contributor, except that no actuarial adjustment applies.

D. Description of Data

Human Resources Development Canada (HRDC) provided us with a 31 December 2000 extract of the CPP Master Benefit File, which contains information on all CPP benefits paid in each month since 1966 when the CPP was established. From the extract we took all the data covering the sixteen-year period (from January 1985 to December 2000) selected for our study. We validated each data record and found only 0.1% of them to have incurred or

missing data; these records were discarded. The study included 328,000 deaths and 10,773,923 life-years of exposure.

The recent 1995-1997 Life Tables for Canada (LTC) published by Statistics Canada, present a demographic model that portrays in a clear and concise manner the mortality experience of the general Canadian population and permits one to derive comparative measures of expected longevity. The tables were produced using the age-sex-specific mortality rates for Canada that prevailed over the period 1995-1997.

E. Methodology

1. Mortality Rates

The mortality rate for a given age last birthday in any given calendar year (CY) is the probability that a person at that age on 1 January dies by 31 December. Mortality rates (q_{age}) are calculated for each calendar year by attained age and sex by simply dividing the relevant number of deaths (d_{age}) by the corresponding total exposures (E_{age}).

$$q_{age}^{CY} = \frac{d_{age}^{CY}}{E_{age}^{CY}}$$

Mortality rates determined in such a manner were then compared to those of the general population (based on the 1995-1997 LTC). However, to do so, we needed to put the data on the same basis, i.e. mortality rates centered in year 1996. For this purpose the survivor mortality level considered to apply to 1996 was obtained by using an exponential regression to remove the random year-to-year fluctuations over the experience period 1985-2000. This was done for each age and sex. A graduation was also made for males and females over 50 to significantly improve the smoothness of the mortality rates at advanced ages.

2. Deaths

The first step in the calculation of experience mortality rates is to count the number of deaths (d_{age}) by calendar year and age. Mortality rates below 50 for males and females were not calculated, as there were not enough exposures from which derive reliable mortality rates.

3. Exposures

The second step in the calculation of survivor beneficiary mortality rates is to calculate mortality exposures (E_{age}) by calendar year and attained age last birthday. Exposures are interpreted as the number of persons exposed to the risk of death during the period examined. The approach used was seriatim (i.e. each individual separately) as opposed to grouped. The methodology used for the calculation of exposures is based on the Balducci convention whereby a person contributes exposure in respect of the portion of the year remaining at the time of

death. The exposures including Balducci add-ons, and the corresponding numbers of deaths, are then tabulated by year, age, and sex.

Male exposures are considerably lower than for females at all ages. One reason is that CPP participation rates for females have historically been lower than male rates, meaning fewer potential male survivors. A second reason is that new survivors are predominantly female for couples in general because male mortality is materially higher than female mortality. As well, male spouses on average are several years older than female spouses. The very low male exposures make the calculation of mortality rates more difficult at the younger ages. The exposures for 1996 only are presented in Charts 43 and 44.

Chart 43 Male CPP Survivor Beneficiary Exposures – 1996

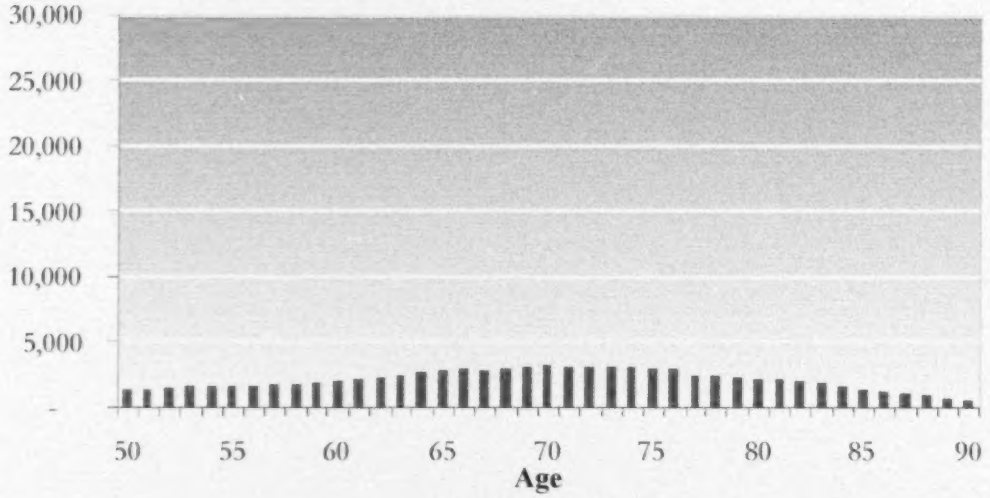
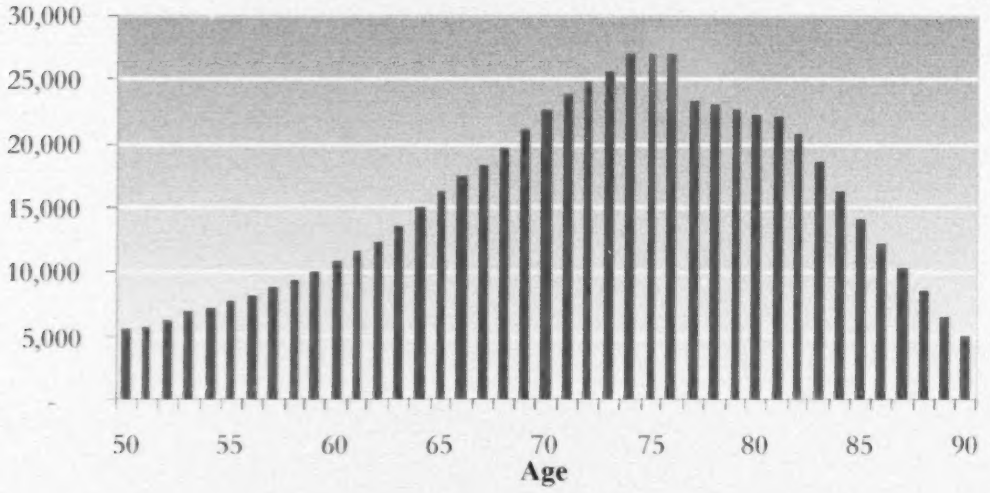


Chart 44 Female CPP Survivor Beneficiary Exposures – 1996



4. Mortality Ratios

The next step was to compare the survivor mortality rates to those of the general population. The ratios were then graduated using a polynomial regression.

Because we assume that survivor mortality rates eventually converge to the general population mortality, mortality rates for male survivor beneficiaries are assumed to gradually reach those of the general population by age 109 while female survivor beneficiary mortality rates are assumed to do so by age 83, after which the experience rates were indistinguishable from general population rates.

F. Results

1. Results by Sex

Charts 45 and 46 show the 1996 mortality rates derived for CPP survivor beneficiaries and the female rates as a proportion of the male rates, respectively. Chart 46 confirms that there is a gender gap in survivor mortality but that the pattern is unique. At age 50 female mortality rates are 73% of male rates with the ratio dropping to only 54% by age 65. The gap after age 65 gradually disappears by age 109. Table 19 shows the resulting survivor beneficiary mortality rates and general population mortality ratios by age and sex.

Chart 47 is particularly useful because it expresses CPP survivor mortality rates relative to the rates for the general population. CPP survivor beneficiary mortality is seen to be significantly higher than that of the general population. One reason might be that survivors are deeply affected by the loss of their spouse, especially at the older ages where the survivor may already be in a weakened condition. Also in some cases one could assume that losing part of the primary source of income adds stress to the survivors.

Chart 47 also shows that male mortality rates are higher than those for the general population at all ages. The male and female mortality ratio curves have different shapes. Males have a bell-shaped curve where the ratios increase from age 50 to 62 and then gradually decrease to reach one by age 109. In contrast, female mortality ratios have a gradually decreasing pattern from age 50 up to age 83 where they reach the ultimate ratio of 1.0. At age 50, male mortality rates are 9% higher than the general population while female rates are about 30% higher. At age 65 the excess reaches 27% for males and 18% for females and then gradually disappears by age 109 for males and age 83 for females (see Chart 47).

Chart 45 CPP Survivor Beneficiary Mortality Rates - 1996
(annual deaths per thousand persons)

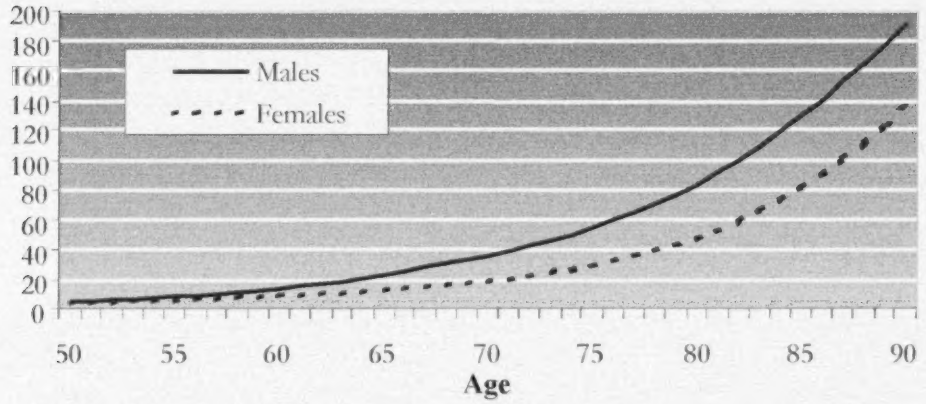


Chart 46 Female/Male Ratio of CPP Survivor Beneficiary Mortality

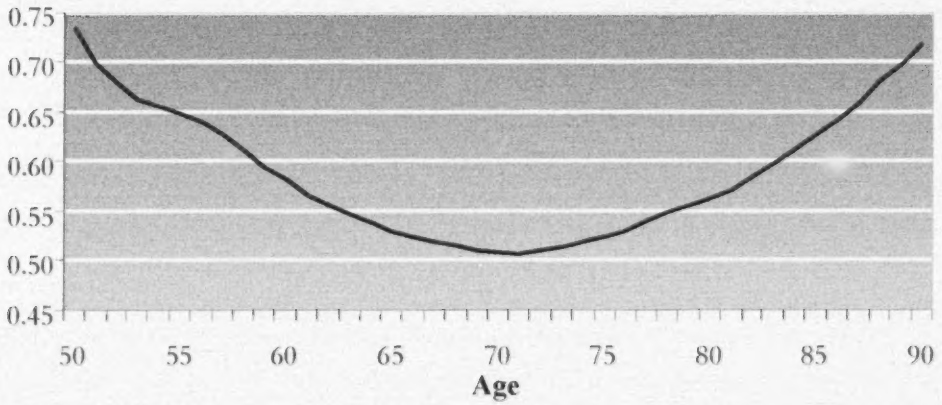


Chart 47 CPP Survivor Beneficiary Mortality Ratios Relative to General Population

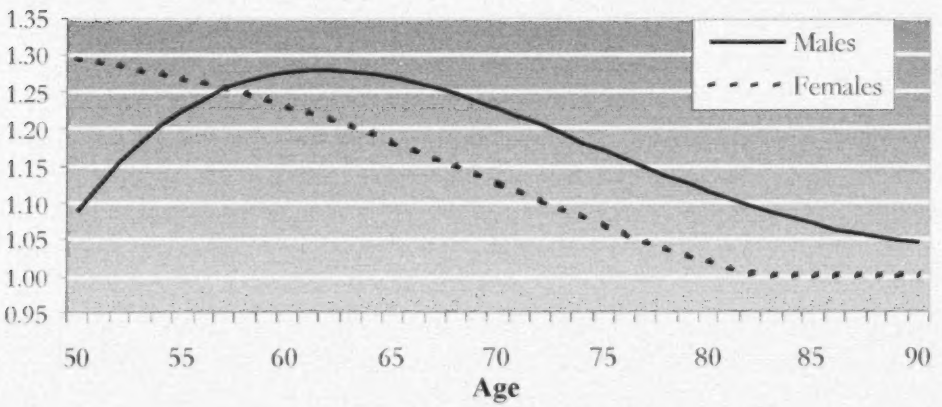


Table 19 CPP Survivor Beneficiary Mortality Rates and Ratios – 1996

	Mortality Rates (per thousand)				Mortality Ratios for CPP Survivors		
	General Population[1]		CPP Survivors		General Population[1]		Female
Age	Male	Female	Male	Female	Male	Female	Vs. Male
50	4.0	2.5	4.3	3.2	1.09	1.30	0.73
51	4.4	2.7	5.0	3.5	1.12	1.29	0.70
52	4.9	3.0	5.7	3.9	1.15	1.29	0.68
53	5.4	3.3	6.4	4.3	1.18	1.28	0.66
54	6.0	3.7	7.2	4.7	1.20	1.27	0.65
55	6.5	4.1	8.0	5.2	1.22	1.27	0.65
56	7.2	4.5	8.9	5.7	1.24	1.26	0.64
57	7.9	5.0	9.9	6.2	1.25	1.25	0.63
58	8.8	5.4	11.1	6.8	1.26	1.25	0.61
59	9.7	5.9	12.4	7.3	1.27	1.24	0.59
60	10.7	6.5	13.7	7.9	1.28	1.23	0.58
61	11.9	7.0	15.2	8.6	1.28	1.22	0.57
62	13.2	7.7	16.9	9.4	1.28	1.21	0.56
63	14.6	8.5	18.6	10.2	1.28	1.20	0.55
64	16.1	9.3	20.6	11.0	1.27	1.19	0.54
65	17.9	10.1	22.7	12.0	1.27	1.18	0.53
66	19.7	11.1	24.9	13.0	1.26	1.17	0.52
67	21.8	12.2	27.4	14.2	1.26	1.16	0.52
68	24.0	13.4	30.0	15.4	1.25	1.15	0.51
69	26.4	14.7	32.7	16.7	1.24	1.14	0.51
70	29.0	16.1	35.6	18.1	1.23	1.13	0.51
71	31.9	17.6	38.8	19.7	1.22	1.11	0.51
72	35.1	19.6	42.3	21.6	1.20	1.10	0.51
73	38.6	21.7	46.1	23.7	1.19	1.09	0.51
74	42.4	24.0	50.0	25.9	1.18	1.08	0.52
75	46.5	26.7	54.4	28.5	1.17	1.07	0.52
76	51.1	29.7	59.1	31.4	1.16	1.06	0.53
77	56.2	33.2	64.4	34.7	1.15	1.05	0.54
78	61.9	37.1	70.3	38.5	1.14	1.04	0.55
79	68.3	41.5	76.7	42.6	1.12	1.03	0.55
80	75.1	46.3	83.7	47.1	1.11	1.02	0.56
81	82.7	51.7	91.3	52.2	1.10	1.01	0.57
82	91.0	58.0	99.6	58.1	1.09	1.00	0.58
83	100.2	65.0	108.8	65.0	1.09	1.00	0.60
84	110.1	72.5	118.6	72.5	1.08	1.00	0.61
85	120.7	80.9	129.2	80.9	1.07	1.00	0.63
86	132.1	90.2	140.5	90.2	1.06	1.00	0.64
87	144.3	100.6	152.7	100.6	1.06	1.00	0.66
88	156.0	111.6	164.3	111.6	1.05	1.00	0.68
89	169.2	123.9	177.5	123.9	1.05	1.00	0.70
90	183.3	137.5	191.6	137.5	1.05	1.00	0.72
95	279.1	218.6	289.1	218.6	1.04	1.00	0.76
100	392.2	321.9	405.6	321.9	1.03	1.00	0.79
105	524.2	442.8	535.9	442.8	1.02	1.00	0.83
109	1000.0	1000.0	1000.0	1000.0	1.00	1.00	1.00

[1] Derived from 1995-1997 Canada and Quebec LTC rates using 1996 population as weights.

2. Mortality Improvements and Life Expectancies

Annual mortality improvement rates for survivor beneficiaries were calculated over the period 1987-1996 by age group and sex. As a comparison, Table 20 also shows the general population mortality improvement rates for the same period, as well as the ultimate assumption used in the Eighteenth CPP Actuarial Report, i.e. the improvement factors for 2021 and later (see section II-C for a full description).

Over the years 1987 to 1996, male survivor beneficiary mortality by age group generally improved at a rate somewhat lower than that observed for the general population. The same comment applies to female survivor beneficiaries.

Table 20 CPP Survivor Beneficiary Annual Mortality Improvement Rates

	Male			Female		
Age Group	General Population [1] (1987-96)	CPP Survivor Beneficiaries (1987-96)	18th CPP Actuarial Report (2021+)	General Population [1] (1987-96)	CPP Survivor Beneficiaries (1987-96)	18th CPP Actuarial Report (2021+)
50-54	2.35%	1.59%	0.60%	1.96%	1.00%	0.50%
55-59	2.71	2.33	0.60	1.16	0.72	0.50
60-64	2.67	2.46	0.60	1.40	1.17	0.50
65-69	2.03	2.02	0.60	0.95	-0.07	0.50
70-74	1.82	1.12	0.60	1.07	0.46	0.50
75-79	1.45	0.77	0.55	0.87	0.48	0.50
80-84	0.79	0.83	0.55	0.56	0.21	0.50
85-89	0.19	-1.22	0.55	-0.08	0.19	0.50
90+	-	-	0.55	-	-	0.50

[1] Based on Life Tables for Canada (see Section III).

Table 21 shows the life expectancy of survivor beneficiaries without future mortality improvements based on the graduated mortality rates obtained for 1996. For comparison purposes, the table also shows the general population life expectancy at comparable ages. Male CPP survivor beneficiary life expectancies are materially lower (roughly 5% at most ages) than the corresponding figures for the general population; for female survivor beneficiaries, they are slightly lower (generally 1% to 2%) until about age 80, after which they are the same as for the general population.

Table 21 CPP Survivor Beneficiary Life Expectancies[1] - 1996

	Male		Female	
Age	General Population	CPP	General Population	CPP
50	28.50	26.95	33.01	32.21
55	24.15	22.65	28.47	27.79
60	20.04	18.69	24.12	23.59
65	16.24	15.12	19.98	19.60
70	12.84	11.99	16.09	15.87
75	9.85	9.27	12.50	12.41
80	7.33	6.96	9.34	9.32
85	5.31	5.10	6.71	6.71
90	3.79	3.66	4.69	4.69

[1] Based on 1996 mortality rates (i.e. no subsequent mortality improvements).

VI. OAS Beneficiary Mortality

A. Introduction

Historically, mortality at older ages has been difficult to measure accurately. Reliable sources of data have been rare. A good source of data for measuring mortality at ages 80 and over in future will be the administrative database of Old Age Security beneficiaries. We currently have only an aggregate extract of this database preventing us to do extensive studies. This section looks at the methodology used in the Fifth OAS Actuarial Report

B. Benefit Eligibility

The OAS basic pension is a monthly benefit available, on application, to anyone age 65 or over who meets the residence requirements specified in the *Old Age Security Act*.

To qualify for a basic pension, a person must be 65 years of age or over, and

- must be a Canadian citizen or a legal resident of Canada on the day preceding the approval of his or her application; or
- if the person no longer lives in Canada, must have been a Canadian citizen or a legal resident of Canada on the day preceding the day he or she stopped living in Canada.

A minimum of 10 years of residence in Canada after reaching age 18 is required to receive a basic pension in Canada. To receive the pension outside the country, a person must have lived in Canada for a minimum of 20 years after reaching age 18. An international social security agreement may assist a person to meet the 10- and 20-year requirements.

C. Benefit Calculation

The amount of a pension is determined by how long the applicant has lived in Canada, according to the following rules:

- A person who has lived in Canada, after reaching age 18, for periods that total at least 40 years may qualify for a full OAS pension.
- A person who has not lived in Canada for 40 years after reaching age 18 may still qualify for a full pension if, on 1 July 1977, he or she was 25 years of age or over, and
  - lived in Canada on that date, or
  - had lived in Canada before that date and after reaching age 18, or
  - possessed a valid immigration visa on that date.

- In such cases, the individual must have lived in Canada for the 10 years immediately prior to approval of the application for the pension. Absences during this 10-year period may be offset if, after reaching age 18, the applicant was present in Canada before those 10 years for a total period that was at least three times the length of absence. In this instance, however, the applicant must also have lived in Canada for at least one year immediately prior to the date of the approval of the application. For example, an absence of two years between the ages of 60 and 62 could be offset by six years of presence in Canada after age 18 and before reaching age 55.

A person who cannot meet the requirements for the full OAS pension may qualify for a partial pension earned at the rate of $1/40^{th}$ of the full monthly pension for each complete year of residence in Canada after reaching age 18. Once a partial pension has been approved, it may not be increased as a result of additional years of residence in Canada.

D. Description of Data

Human Resources Development Canada (HRDC) provided us with a 31 December 2000 extract of the OAS Master Benefit File, which contains information on all OAS beneficiaries for the month of June each year. The file is produced by type of benefit and covers the years 1983 to 2000 all of which are included in our study. Because the data are in a grouped format, it is impossible to follow a given beneficiary over the length of his or her beneficiary period. Furthermore, because the data are grouped by age the date and cause of exit are unknown. Therefore it prevents us from doing extensive studies on the mortality of the OAS beneficiaries.

E. Methodology

The starting point for mortality rate projections in this report is the mortality rates from the Statistics Canada publication "Life Tables, Canada and Provinces, 1990-1992". According to these tables, life expectancies at birth for males and females in Canada were 74.6 and 80.9 years, respectively. The 1995-1997 Life Tables were not yet available for the Fifth OAS Actuarial Report.

To reflect anticipated sustained improvements in life expectancy, the 1990-1992 mortality rates were projected to 1996 using the actual improvements in mortality experienced since 1991. This approach produced life expectancies at birth and at age 65 of 75.5 and 16.1 years for males and 81.2 and 20.0 years for females, respectively, which compared reasonably well with figures published by Statistics Canada for 1996. Mortality rates thus obtained for 1996 were then further projected to the end of the projection period using the following annual rates of mortality improvement. For 1997 to 2020, the annual rates of mortality improvement, varying by age, sex and calendar year, were obtained by linear interpolation between:

- the average improvement rates experienced in Canada between 1987 and 1996, and

- the fixed improvement rates described below in respect of the period 2021 and thereafter.

For 2021 and subsequent years, the assumed rates of improvement vary by age and sex only and not by calendar year. These ultimate rates were derived from an analysis of the Canadian and U.S. experience over the last century and are generally consistent with the Alternative II assumption used in the 2000 Social Security Administration Old-Age and Survivors Insurance and Disability Insurance Trust Fund trustees report. More details on the methodology can be found in the section III.B of the current study.

The next two tables present the evolution of the number of OAS beneficiaries and their distribution by age group. It can be seen that over the last 15 years the number of OAS beneficiaries age 80 and over increased from 16% in 1985 to almost 19% in 2000 for males. For females the figures are respectively 23% and 27%.

Table 22 OAS Number of Beneficiaries

	Male				Female			
Age Group	1985	1990	1995	2000	1985	1990	1995	2000
65-69	392,480	465,256	511,151	529,868	465,161	554,056	564,996	568,169
70-74	315,643	334,706	415,719	454,112	396,576	433,692	523,308	533,610
75-79	202,753	242,528	267,269	331,667	287,133	346,839	384,279	463,374
80-84	106,358	132,853	164,908	182,879	182,723	225,615	278,002	308,223
85-89	45,308	56,243	71,468	88,613	100,609	120,606	152,247	186,271
90-94	16,744	16,963	22,013	26,890	42,063	49,689	61,565	75,407
95-99	3,792	4,006	4,108	4,889	10,856	13,615	16,129	19,086
100-104	470	617	514	515	1,514	2,169	2,477	2,732
105-109	76	49	44	22	181	170	194	172
110-114	52	3	1	1	77	3	5	13
115-120	7	-	-	-	11	1	-	-
80+	172,807	210,734	263,056	303,809	338,034	411,868	510,619	591,904
100+	605	669	559	538	1,783	2,343	2,676	2,917
ALL	1,083,683	1,253,224	1,457,195	1,619,456	1,486,904	1,746,455	1,983,202	2,157,057

Table 23 OAS Number of Beneficiaries Distribution

	Male				Female			
Age Group	**1985**	**1990**	**1995**	**2000**	**1985**	**1990**	**1995**	**2000**
	%	%	%	%	%	%	%	%
65-69	36.2	37.1	35.1	32.7	31.3	31.7	28.5	26.3
70-74	29.1	26.7	28.5	28.0	26.7	24.8	26.4	24.7
75-79	18.7	19.4	18.3	20.5	19.3	19.9	19.4	21.5
80-84	9.8	10.6	11.3	11.3	12.3	12.9	14.0	14.3
85-89	4.2	4.5	4.9	5.5	6.8	6.9	7.7	8.6
90-94	1.5	1.4	1.5	1.7	2.8	2.8	3.1	3.5
95-99	0.3	0.3	0.3	0.3	0.7	0.8	0.8	0.9
100-104	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
105-109	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80+	15.9	16.8	18.1	18.8	22.7	23.6	25.7	27.4
100+	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1
ALL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

A new database with seriatim data will enable us in the short future to do a more complete study of the mortality of OAS beneficiaries.

VII. Appendices

Appendix A Life Tables for Canada less Quebec (18th CPP Actuarial Report)

Calendar Year 1970

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
0	.020052	100,000	2,005	98,396	6,988,806	69.89	0	.015455	100,000	1,546	98,764	7,664,506	76.65
1	.001297	97,995	127	97,931	6,890,411	70.31	1	.001172	98,454	115	98,397	7,565,743	76.85
2	.000926	97,868	91	97,822	6,792,479	69.40	2	.000764	98,339	75	98,302	7,467,346	75.93
3	.000771	97,777	75	97,739	6,694,657	68.47	3	.000581	98,264	57	98,235	7,369,044	74.99
4	.000668	97,702	65	97,669	6,596,917	67.52	4	.000527	98,207	52	98,181	7,270,809	74.04
5	.000579	97,636	56	97,608	6,499,248	66.57	5	.000458	98,155	45	98,133	7,172,628	73.07
6	.000492	97,580	48	97,556	6,401,640	65.60	6	.000381	98,110	37	98,092	7,074,495	72.11
7	.000422	97,532	41	97,511	6,304,084	64.64	7	.000319	98,073	31	98,057	6,976,404	71.13
8	.000375	97,491	37	97,473	6,206,573	63.66	8	.000286	98,042	28	98,028	6,878,347	70.16
9	.000354	97,454	34	97,437	6,109,100	62.69	9	.000269	98,014	26	98,000	6,780,319	69.18
10	.000367	97,420	36	97,402	6,011,663	61.71	10	.000268	97,987	26	97,974	6,682,319	68.20
11	.000392	97,384	38	97,365	5,914,261	60.73	11	.000271	97,961	27	97,948	6,584,345	67.21
12	.000460	97,346	45	97,324	5,816,896	59.75	12	.000298	97,934	29	97,920	6,486,397	66.23
13	.000599	97,301	58	97,272	5,719,572	58.78	13	.000331	97,905	32	97,889	6,388,477	65.25
14	.000796	97,243	77	97,204	5,622,300	57.82	14	.000382	97,873	37	97,854	6,290,588	64.27
15	.001010	97,166	98	97,116	5,525,096	56.86	15	.000435	97,835	43	97,814	6,192,734	63.30
16	.001220	97,067	118	97,008	5,427,980	55.92	16	.000486	97,793	48	97,769	6,094,920	62.32
17	.001386	96,949	134	96,882	5,330,971	54.99	17	.000522	97,745	51	97,720	5,997,151	61.35
18	.001510	96,815	146	96,742	5,234,090	54.06	18	.000536	97,694	52	97,668	5,899,432	60.39
19	.001616	96,668	156	96,590	5,137,348	53.14	19	.000536	97,642	52	97,616	5,801,764	59.42
20	.001628	96,512	157	96,434	5,040,758	52.23	20	.000516	97,589	50	97,564	5,704,148	58.45
21	.001681	96,355	162	96,274	4,944,324	51.31	21	.000511	97,539	50	97,514	5,606,584	57.48
22	.001703	96,193	164	96,111	4,848,050	50.40	22	.000513	97,489	50	97,464	5,509,070	56.51
23	.001677	96,029	161	95,949	4,751,939	49.48	23	.000521	97,439	51	97,414	5,411,605	55.54
24	.001606	95,868	154	95,791	4,655,990	48.57	24	.000530	97,389	52	97,363	5,314,191	54.57
25	.001557	95,714	149	95,640	4,560,199	47.64	25	.000559	97,337	54	97,310	5,216,829	53.60
26	.001474	95,565	141	95,495	4,464,559	46.72	26	.000579	97,283	56	97,254	5,119,519	52.63
27	.001426	95,424	136	95,356	4,369,064	45.79	27	.000607	97,226	59	97,197	5,022,264	51.66
28	.001412	95,288	135	95,221	4,273,708	44.85	28	.000646	97,167	63	97,136	4,925,068	50.69
29	.001416	95,154	135	95,087	4,178,486	43.91	29	.000691	97,104	67	97,071	4,827,932	49.72
30	.001436	95,019	136	94,951	4,083,400	42.97	30	.000743	97,037	72	97,001	4,730,861	48.75
31	.001474	94,883	140	94,813	3,988,449	42.04	31	.000801	96,965	78	96,926	4,633,860	47.79
32	.001520	94,743	145	94,671	3,893,636	41.10	32	.000864	96,888	84	96,846	4,536,933	46.83
33	.001596	94,598	151	94,523	3,798,965	40.16	33	.000930	96,804	90	96,759	4,440,087	45.87
34	.001675	94,447	158	94,368	3,704,443	39.22	34	.001000	96,714	97	96,665	4,343,329	44.91
35	.001800	94,289	170	94,204	3,610,075	38.29	35	.001091	96,617	105	96,564	4,246,663	43.95
36	.001929	94,119	182	94,028	3,515,871	37.36	36	.001180	96,512	114	96,455	4,150,099	43.00
37	.002094	93,938	197	93,839	3,421,842	36.43	37	.001286	96,398	124	96,336	4,053,644	42.05
38	.002297	93,741	215	93,633	3,328,003	35.50	38	.001410	96,274	136	96,206	3,957,308	41.10
39	.002532	93,526	237	93,407	3,234,370	34.58	39	.001547	96,138	149	96,064	3,861,102	40.16
40	.002797	93,289	261	93,158	3,140,962	33.67	40	.001698	95,989	163	95,908	3,765,038	39.22
41	.003088	93,028	287	92,884	3,047,804	32.76	41	.001861	95,826	178	95,737	3,669,130	38.29
42	.003404	92,741	316	92,583	2,954,920	31.86	42	.002034	95,648	195	95,551	3,573,393	37.36
43	.003730	92,425	345	92,253	2,862,337	30.97	43	.002212	95,454	211	95,348	3,477,842	36.43
44	.004068	92,080	375	91,893	2,770,084	30.08	44	.002396	95,242	228	95,128	3,382,494	35.51
45	.004471	91,706	410	91,501	2,678,191	29.20	45	.002591	95,014	246	94,891	3,287,366	34.60
46	.004898	91,296	447	91,072	2,586,690	28.33	46	.002811	94,768	266	94,635	3,192,475	33.69
47	.005400	90,848	491	90,603	2,495,618	27.47	47	.003060	94,502	289	94,357	3,097,840	32.78
48	.005977	90,358	540	90,088	2,405,015	26.62	48	.003338	94,213	314	94,055	3,003,483	31.88
49	.006616	89,818	594	89,521	2,314,927	25.77	49	.003639	93,898	342	93,727	2,909,428	30.98
50	.007315	89,224	653	88,897	2,225,406	24.94	50	.003966	93,556	371	93,371	2,815,700	30.10
51	.008072	88,571	715	88,214	2,136,509	24.12	51	.004319	93,185	402	92,984	2,722,330	29.21
52	.008884	87,856	781	87,466	2,048,295	23.31	52	.004704	92,783	436	92,565	2,629,346	28.34
53	.009721	87,076	846	86,652	1,960,830	22.52	53	.005109	92,346	472	92,110	2,536,781	27.47
54	.010582	86,229	912	85,773	1,874,177	21.73	54	.005535	91,875	509	91,620	2,444,670	26.61

Calendar Year 1970 (Continued)

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
55	.011559	85,317	986	84,824	1,788,404	20.96	55	.006006	91,366	549	91,092	2,353,050	25.75
56	.012612	84,330	1,064	83,799	1,703,581	20.20	56	.006512	90,817	591	90,522	2,261,958	24.91
57	.013830	83,267	1,152	82,691	1,619,782	19.45	57	.007073	90,226	638	89,907	2,171,437	24.07
58	.015205	82,115	1,249	81,491	1,537,091	18.72	58	.007669	89,588	687	89,244	2,081,530	23.23
59	.016711	80,867	1,351	80,191	1,455,600	18.00	59	.008293	88,901	737	88,532	1,992,286	22.41
60	.018346	79,515	1,459	78,786	1,375,409	17.30	60	.008975	88,163	791	87,768	1,903,754	21.59
61	.020116	78,057	1,570	77,271	1,296,623	16.61	61	.009753	87,372	852	86,946	1,815,986	20.78
62	.022029	76,486	1,685	75,644	1,219,352	15.94	62	.010669	86,520	923	86,058	1,729,040	19.98
63	.024089	74,801	1,799	73,902	1,143,708	15.29	63	.011687	85,597	1,000	85,097	1,642,981	19.19
64	.026305	73,003	1,912	72,047	1,069,806	14.65	64	.012789	84,596	1,082	84,056	1,557,885	18.42
65	.028676	71,091	2,010	70,086	997,759	14.03	65	.014002	83,515	1,169	82,930	1,473,829	17.65
66	.030718	69,081	2,122	68,020	927,673	13.43	66	.015389	82,345	1,267	81,712	1,390,899	16.89
67	.033383	66,959	2,235	65,841	859,654	12.84	67	.016976	81,078	1,376	80,390	1,309,188	16.15
68	.036220	64,723	2,344	63,551	793,812	12.26	68	.018714	79,702	1,492	78,956	1,228,798	15.42
69	.039215	62,379	2,446	61,156	730,261	11.71	69	.020583	78,210	1,610	77,405	1,149,842	14.70
70	.042445	59,933	2,544	58,661	669,105	11.16	70	.022648	76,600	1,735	75,733	1,072,436	14.00
71	.045948	57,389	2,637	56,071	610,444	10.64	71	.025002	74,866	1,872	73,930	996,703	13.31
72	.049731	54,752	2,723	53,391	554,373	10.13	72	.027708	72,994	2,023	71,983	922,774	12.64
73	.053841	52,029	2,801	50,629	500,983	9.63	73	.030729	70,971	2,181	69,881	850,791	11.99
74	.058219	49,228	2,866	47,795	450,354	9.15	74	.033945	68,790	2,335	67,623	780,910	11.35
75	.062919	46,362	2,917	44,903	402,559	8.68	75	.037481	66,455	2,491	65,210	713,288	10.73
76	.068099	43,445	2,959	41,966	357,655	8.23	76	.041534	63,964	2,657	62,636	648,078	10.13
77	.073825	40,486	2,989	38,992	315,690	7.80	77	.046202	61,308	2,833	59,891	585,442	9.55
78	.080024	37,497	3,001	35,997	276,698	7.38	78	.051427	58,475	3,007	56,972	525,550	8.99
79	.086610	34,497	2,988	33,003	240,701	6.98	79	.057209	55,468	3,173	53,881	468,578	8.45
80	.093645	31,509	2,951	30,034	207,698	6.59	80	.063464	52,295	3,319	50,635	414,697	7.93
81	.101453	28,558	2,897	27,110	177,664	6.22	81	.070426	48,976	3,449	47,251	364,062	7.43
82	.109722	25,661	2,816	24,253	150,555	5.87	82	.078265	45,527	3,563	43,745	316,810	6.96
83	.118688	22,845	2,711	21,490	126,301	5.53	83	.086981	41,964	3,650	40,139	273,065	6.51
84	.128382	20,134	2,585	18,842	104,812	5.21	84	.096158	38,314	3,684	36,471	232,927	6.08
85	.138495	17,549	2,430	16,334	85,970	4.90	85	.106342	34,629	3,683	32,788	196,455	5.67
86	.149516	15,119	2,260	13,988	69,636	4.61	86	.117451	30,947	3,635	29,129	163,667	5.29
87	.161419	12,858	2,076	11,820	55,648	4.33	87	.129636	27,312	3,541	25,542	134,537	4.93
88	.173992	10,783	1,876	9,845	43,827	4.06	88	.142635	23,771	3,391	22,076	108,996	4.59
89	.187345	8,907	1,669	8,072	33,983	3.82	89	.156757	20,381	3,195	18,783	86,920	4.26
90	.201305	7,238	1,457	6,509	25,911	3.58	90	.171623	17,186	2,950	15,711	68,136	3.96
91	.216329	5,781	1,251	5,156	19,401	3.36	91	.187697	14,236	2,672	12,900	52,425	3.68
92	.232350	4,530	1,053	4,004	14,245	3.14	92	.205047	11,564	2,371	10,379	39,524	3.42
93	.249300	3,478	867	3,044	10,241	2.94	93	.223582	9,193	2,055	8,165	29,146	3.17
94	.267114	2,611	697	2,262	7,197	2.76	94	.243215	7,138	1,736	6,270	20,980	2.94
95	.285881	1,913	547	1,640	4,935	2.58	95	.264076	5,402	1,426	4,688	14,711	2.72
96	.305689	1,366	418	1,158	3,295	2.41	96	.286294	3,975	1,138	3,406	10,022	2.52
97	.326626	949	310	794	2,138	2.25	97	.310001	2,837	880	2,397	6,616	2.33
98	.348621	639	223	527	1,344	2.10	98	.335108	1,958	656	1,630	4,219	2.15
99	.371589	416	155	339	817	1.96	99	.361532	1,302	471	1,066	2,589	1.99
100	.395601	261	103	210	478	1.83	100	.389408	831	324	669	1,523	1.83
101	.420742	158	66	125	268	1.70	101	.418872	507	213	401	853	1.68
102	.447109	92	41	71	143	1.56	102	.450065	295	133	229	452	1.53
103	.474659	51	24	39	72	1.43	103	.482908	162	78	123	224	1.38
104	.503366	27	13	20	34	1.26	104	.517329	84	43	62	101	1.20
105	.533385	13	7	10	14	1.03	105	.553490	40	22	29	39	0.95
106	.872323	6	5	3	4	0.64	106	.985974	18	18	9	9	0.51
107	.882905	1	1	0	0	0.63	107	.989552	0	0	0	0	0.51
108	.884357	0	0	0	0	0.62	108	1.000000	0	0	0	0	0.50
109	1.000000	0	0	0	0	0.59	109	1.000000	-	-	-	-	0.00

Calendar Year 1980

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
0	.011774	100,000	1,177	99,058	7,204,199	72.04	0	.009033	100,000	903	99,277	7,889,124	78.89
1	.000835	98,823	83	98,781	7,105,141	71.90	1	.000709	99,097	70	99,062	7,789,847	78.61
2	.000656	98,740	65	98,708	7,006,359	70.96	2	.000496	99,026	49	99,002	7,690,785	77.66
3	.000509	98,675	50	98,650	6,907,652	70.00	3	.000411	98,977	41	98,957	7,591,784	76.70
4	.000479	98,625	47	98,601	6,809,002	69.04	4	.000326	98,937	32	98,921	7,492,827	75.73
5	.000396	98,578	39	98,558	6,710,400	68.07	5	.000268	98,904	26	98,891	7,393,906	74.76
6	.000297	98,539	29	98,524	6,611,842	67.10	6	.000229	98,878	23	98,867	7,295,015	73.78
7	.000214	98,510	21	98,499	6,513,318	66.12	7	.000204	98,855	20	98,845	7,196,148	72.79
8	.000186	98,488	18	98,479	6,414,819	65.13	8	.000184	98,835	18	98,826	7,097,303	71.81
9	.000187	98,470	18	98,461	6,316,339	64.14	9	.000176	98,817	17	98,808	6,998,477	70.82
10	.000219	98,452	22	98,441	6,217,878	63.16	10	.000181	98,799	18	98,790	6,899,669	69.84
11	.000263	98,430	26	98,417	6,119,438	62.17	11	.000189	98,782	19	98,772	6,800,879	68.85
12	.000346	98,404	34	98,387	6,021,020	61.19	12	.000217	98,763	21	98,752	6,702,106	67.86
13	.000497	98,370	49	98,346	5,922,633	60.21	13	.000256	98,741	25	98,729	6,603,354	66.88
14	.000709	98,321	70	98,286	5,824,287	59.24	14	.000310	98,716	31	98,701	6,504,625	65.89
15	.000927	98,252	91	98,206	5,726,001	58.28	15	.000367	98,686	36	98,668	6,405,925	64.91
16	.001141	98,161	112	98,105	5,627,795	57.33	16	.000422	98,649	42	98,629	6,307,257	63.94
17	.001303	98,049	128	97,985	5,529,690	56.40	17	.000460	98,608	45	98,585	6,208,628	62.96
18	.001412	97,921	138	97,852	5,431,706	55.47	18	.000478	98,562	47	98,539	6,110,043	61.99
19	.001493	97,783	146	97,710	5,333,854	54.55	19	.000483	98,515	48	98,492	6,011,504	61.02
20	.001495	97,637	146	97,564	5,236,144	53.63	20	.000470	98,468	46	98,445	5,913,013	60.05
21	.001527	97,491	149	97,416	5,138,581	52.71	21	.000464	98,422	46	98,399	5,814,568	59.08
22	.001540	97,342	150	97,267	5,041,165	51.79	22	.000466	98,376	46	98,353	5,716,169	58.11
23	.001522	97,192	148	97,118	4,943,898	50.87	23	.000470	98,330	46	98,307	5,617,816	57.13
24	.001474	97,044	143	96,972	4,846,780	49.94	24	.000476	98,284	47	98,260	5,519,509	56.16
25	.001456	96,901	141	96,830	4,749,807	49.02	25	.000498	98,237	49	98,213	5,421,249	55.19
26	.001393	96,760	135	96,692	4,652,977	48.09	26	.000506	98,188	50	98,163	5,323,036	54.21
27	.001348	96,625	130	96,560	4,556,285	47.15	27	.000519	98,138	51	98,113	5,224,873	53.24
28	.001316	96,495	127	96,431	4,459,725	46.22	28	.000536	98,088	53	98,061	5,126,760	52.27
29	.001288	96,368	124	96,306	4,363,293	45.28	29	.000554	98,035	54	98,008	5,028,699	51.29
30	.001268	96,244	122	96,183	4,266,987	44.34	30	.000576	97,981	56	97,952	4,930,691	50.32
31	.001268	96,122	122	96,061	4,170,805	43.39	31	.000607	97,924	59	97,895	4,832,738	49.35
32	.001292	96,000	124	95,938	4,074,744	42.45	32	.000651	97,865	64	97,833	4,734,844	48.38
33	.001337	95,876	128	95,812	3,978,806	41.50	33	.000704	97,801	69	97,767	4,637,011	47.41
34	.001395	95,748	134	95,681	3,882,994	40.55	34	.000770	97,732	75	97,695	4,539,244	46.45
35	.001471	95,614	141	95,544	3,787,313	39.61	35	.000856	97,657	84	97,615	4,441,550	45.48
36	.001578	95,474	151	95,398	3,691,769	38.67	36	.000940	97,573	92	97,528	4,343,934	44.52
37	.001703	95,323	162	95,242	3,596,371	37.73	37	.001032	97,482	101	97,432	4,246,407	43.56
38	.001845	95,161	176	95,073	3,501,129	36.79	38	.001133	97,381	110	97,326	4,148,975	42.61
39	.002005	94,985	190	94,890	3,406,056	35.86	39	.001239	97,271	121	97,211	4,051,649	41.65
40	.002188	94,795	207	94,691	3,311,166	34.93	40	.001355	97,150	132	97,085	3,954,439	40.70
41	.002402	94,587	227	94,474	3,216,476	34.01	41	.001487	97,019	144	96,947	3,857,354	39.76
42	.002660	94,360	251	94,234	3,122,002	33.09	42	.001635	96,874	158	96,795	3,760,407	38.82
43	.002951	94,109	278	93,970	3,027,768	32.17	43	.001799	96,716	174	96,629	3,663,612	37.88
44	.003274	93,831	307	93,678	2,933,797	31.27	44	.001975	96,542	191	96,447	3,566,983	36.95
45	.003706	93,524	347	93,351	2,840,120	30.37	45	.002176	96,351	210	96,247	3,470,536	36.02
46	.004116	93,177	383	92,986	2,746,769	29.48	46	.002388	96,142	230	96,027	3,374,290	35.10
47	.004567	92,794	424	92,582	2,653,784	28.60	47	.002619	95,912	251	95,787	3,278,263	34.18
48	.005054	92,370	467	92,137	2,561,202	27.73	48	.002872	95,661	275	95,524	3,182,476	33.27
49	.005582	91,903	513	91,647	2,469,065	26.87	49	.003139	95,386	299	95,237	3,086,952	32.36
50	.006153	91,390	562	91,109	2,377,418	26.01	50	.003429	95,087	326	94,924	2,991,716	31.46
51	.006787	90,828	616	90,520	2,286,309	25.17	51	.003744	94,761	355	94,583	2,896,792	30.57
52	.007497	90,211	676	89,873	2,195,789	24.34	52	.004092	94,406	386	94,213	2,802,209	29.68
53	.008285	89,535	742	89,164	2,105,916	23.52	53	.004465	94,020	420	93,810	2,707,996	28.80
54	.009129	88,793	811	88,388	2,016,752	22.71	54	.004864	93,600	455	93,372	2,614,186	27.93

Calendar Year 1980 (Continued)

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
55	.010072	87,983	886	87,540	1,920,364	21.92	55	.005273	93,145	491	92,899	2,520,814	27.06
56	.011079	87,097	965	86,614	1,840,824	21.14	56	.005741	92,653	532	92,387	2,427,915	26.20
57	.012168	86,132	1,048	85,608	1,754,210	20.37	57	.006251	92,122	576	91,834	2,335,528	25.35
58	.013323	85,084	1,134	84,517	1,668,603	19.61	58	.006793	91,546	622	91,235	2,243,694	24.51
59	.014546	83,950	1,221	83,339	1,584,086	18.87	59	.007353	90,924	669	90,590	2,152,459	23.67
60	.015867	82,729	1,313	82,072	1,500,746	18.14	60	.007968	90,255	719	89,896	2,061,870	22.84
61	.017285	81,416	1,407	80,713	1,418,674	17.42	61	.008653	89,536	775	89,149	1,971,974	22.02
62	.018880	80,009	1,511	79,254	1,337,961	16.72	62	.009447	88,761	839	88,342	1,882,826	21.21
63	.020704	78,498	1,625	77,686	1,258,708	16.03	63	.010345	87,923	910	87,468	1,794,483	20.41
64	.022645	76,873	1,741	76,003	1,181,022	15.36	64	.011309	87,013	984	86,521	1,707,015	19.62
65	.024784	75,132	1,862	74,201	1,105,019	14.71	65	.012396	86,029	1,066	85,496	1,620,494	18.84
66	.027055	73,270	1,982	72,279	1,030,818	14.07	66	.013592	84,963	1,155	84,385	1,534,998	18.07
67	.029547	71,288	2,106	70,235	958,539	13.45	67	.014937	83,808	1,252	83,182	1,450,613	17.31
68	.032211	69,182	2,228	68,067	888,304	12.84	68	.016392	82,556	1,353	81,880	1,367,431	16.56
69	.035009	66,953	2,344	65,781	820,236	12.25	69	.017941	81,203	1,457	80,474	1,285,551	15.83
70	.038043	64,609	2,458	63,380	754,455	11.68	70	.019645	79,746	1,567	78,963	1,205,077	15.11
71	.041404	62,151	2,573	60,865	691,075	11.12	71	.021596	78,179	1,688	77,335	1,126,114	14.40
72	.045107	59,578	2,687	58,234	630,210	10.58	72	.023834	76,491	1,823	75,580	1,048,779	13.71
73	.049091	56,891	2,793	55,494	571,976	10.05	73	.026260	74,668	1,961	73,688	973,199	13.03
74	.053402	54,098	2,889	52,653	516,482	9.55	74	.028871	72,707	2,099	71,658	899,511	12.37
75	.058081	51,209	2,974	49,722	463,828	9.06	75	.031780	70,608	2,244	69,486	827,854	11.72
76	.063192	48,235	3,048	46,711	414,107	8.59	76	.035110	68,364	2,400	67,164	758,368	11.09
77	.068753	45,187	3,107	43,633	367,396	8.13	77	.039035	65,964	2,575	64,676	691,204	10.48
78	.074818	42,080	3,148	40,506	323,763	7.69	78	.043447	63,389	2,754	62,012	626,527	9.88
79	.081271	38,932	3,164	37,350	283,257	7.28	79	.048244	60,635	2,925	59,172	564,515	9.31
80	.088220	35,768	3,155	34,190	245,908	6.88	80	.053562	57,710	3,091	56,164	505,343	8.76
81	.095580	32,612	3,117	31,054	211,718	6.49	81	.059592	54,619	3,255	52,991	449,179	8.22
82	.103679	29,495	3,058	27,966	180,664	6.13	82	.066388	51,364	3,410	49,659	396,188	7.71
83	.112371	26,437	2,971	24,952	152,698	5.78	83	.073923	47,954	3,545	46,181	346,529	7.23
84	.121672	23,466	2,855	22,039	127,746	5.44	84	.082063	44,409	3,644	42,587	300,348	6.76
85	.131498	20,611	2,710	19,256	105,708	5.13	85	.090996	40,765	3,709	38,910	257,761	6.32
86	.142097	17,901	2,544	16,629	86,452	4.83	86	.100788	37,055	3,735	35,188	218,851	5.91
87	.153433	15,357	2,356	14,179	69,823	4.55	87	.111606	33,320	3,719	31,461	183,663	5.51
88	.165490	13,001	2,152	11,925	55,644	4.28	88	.123385	29,602	3,652	27,776	152,202	5.14
89	.178178	10,849	1,933	9,883	43,719	4.03	89	.136008	25,949	3,529	24,185	124,427	4.79
90	.191628	8,916	1,709	8,062	33,836	3.79	90	.149602	22,420	3,354	20,743	100,242	4.47
91	.205842	7,208	1,484	6,466	25,774	3.58	91	.164273	19,066	3,132	17,500	79,499	4.17
92	.220947	5,724	1,265	5,092	19,308	3.37	92	.180199	15,934	2,871	14,498	61,999	3.89
93	.236504	4,459	1,055	3,932	14,217	3.19	93	.197286	13,063	2,577	11,774	47,501	3.64
94	.253624	3,405	864	2,973	10,285	3.02	94	.215444	10,486	2,259	9,356	35,727	3.41
95	.271220	2,541	689	2,197	7,312	2.88	95	.234809	8,227	1,932	7,261	26,371	3.21
96	.289761	1,852	537	1,584	5,115	2.76	96	.255520	6,295	1,608	5,491	19,110	3.04
97	.309421	1,315	407	1,112	3,532	2.68	97	.277707	4,686	1,301	4,036	13,619	2.91
98	.306207	908	278	769	2,420	2.66	98	.276888	3,385	937	2,916	9,584	2.83
99	.288047	630	182	539	1,650	2.62	99	.262800	2,448	643	2,126	6,667	2.72
100	.271026	449	122	388	1,111	2.48	100	.252806	1,804	456	1,576	4,541	2.52
101	.270896	327	89	283	723	2.21	101	.263242	1,348	355	1,171	2,965	2.20
102	.305059	238	73	202	440	1.85	102	.310315	993	308	839	1,794	1.81
103	.407302	166	67	132	238	1.44	103	.422211	685	289	540	955	1.39
104	.555666	98	55	71	106	1.08	104	.575486	396	228	282	414	1.05
105	.723076	44	32	28	35	0.81	105	.741189	168	125	106	132	0.79
106	.878629	12	11	7	8	0.62	106	.889188	43	39	24	27	0.61
107	.990502	1	1	1	1	0.51	107	.992953	5	5	2	2	0.51
108	.990557	0	0	0	0	0.51	108	.992922	0	0	0	0	0.51
109	1.000000	0	0	0	0	0.50	109	1.000000	0	0	0	0	0.50

Calendar Year 1990

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
0	.007494	100,000	749	99,400	7,462,903	74.63	0	.006110	100,000	611	99,511	8,077,158	80.77
1	.000549	99,251	54	99,223	7,363,502	74.19	1	.000489	99,389	49	99,365	7,977,647	80.27
2	.000424	99,196	42	99,175	7,264,279	73.23	2	.000317	99,340	31	99,325	7,878,282	79.31
3	.000361	99,154	36	99,136	7,165,104	72.26	3	.000244	99,309	24	99,297	7,778,958	78.33
4	.000276	99,118	27	99,105	7,065,967	71.29	4	.000189	99,285	19	99,275	7,679,661	77.35
5	.000220	99,091	22	99,080	6,966,863	70.31	5	.000146	99,266	14	99,259	7,580,386	76.36
6	.000179	99,069	18	99,060	6,867,783	69.32	6	.000131	99,251	13	99,245	7,481,127	75.38
7	.000147	99,051	15	99,044	6,768,722	68.34	7	.000119	99,239	12	99,233	7,381,882	74.39
8	.000124	99,037	12	99,031	6,669,678	67.35	8	.000107	99,227	11	99,221	7,282,649	73.39
9	.000124	99,025	12	99,019	6,570,647	66.35	9	.000108	99,216	11	99,211	7,183,428	72.40
10	.000141	99,012	14	99,005	6,471,629	65.36	10	.000119	99,205	12	99,199	7,084,218	71.41
11	.000146	98,998	14	98,991	6,372,624	64.37	11	.000124	99,193	12	99,187	6,985,018	70.42
12	.000222	98,984	22	98,973	6,273,632	63.38	12	.000167	99,181	17	99,173	6,885,831	69.43
13	.000334	98,962	33	98,945	6,174,660	62.39	13	.000199	99,165	20	99,155	6,786,658	68.44
14	.000483	98,929	48	98,905	6,075,714	61.41	14	.000246	99,145	24	99,133	6,687,503	67.45
15	.000656	98,881	65	98,849	5,976,809	60.44	15	.000301	99,120	30	99,105	6,588,371	66.47
16	.000811	98,816	80	98,776	5,877,960	59.48	16	.000348	99,091	34	99,073	6,489,265	65.49
17	.000923	98,736	91	98,691	5,779,184	58.53	17	.000377	99,056	37	99,037	6,390,192	64.51
18	.001006	98,645	99	98,595	5,680,494	57.59	18	.000395	99,019	39	98,999	6,291,154	63.53
19	.001068	98,546	105	98,493	5,581,898	56.64	19	.000389	98,980	39	98,960	6,192,155	62.56
20	.001090	98,440	107	98,387	5,483,405	55.70	20	.000371	98,941	37	98,923	6,093,195	61.58
21	.001117	98,333	110	98,278	5,385,019	54.76	21	.000363	98,905	36	98,887	5,994,272	60.61
22	.001136	98,223	112	98,168	5,286,740	53.82	22	.000361	98,869	36	98,851	5,895,385	59.63
23	.001140	98,112	112	98,056	5,188,573	52.88	23	.000368	98,833	36	98,815	5,796,535	58.65
24	.001132	98,000	111	97,945	5,090,517	51.94	24	.000376	98,797	37	98,778	5,697,720	57.67
25	.001128	97,889	110	97,834	4,992,572	51.00	25	.000388	98,759	38	98,740	5,598,942	56.69
26	.001124	97,779	110	97,724	4,894,739	50.06	26	.000398	98,721	39	98,701	5,500,202	55.71
27	.001118	97,669	109	97,614	4,797,015	49.12	27	.000420	98,682	41	98,661	5,401,500	54.74
28	.001133	97,560	110	97,504	4,699,401	48.17	28	.000429	98,640	42	98,619	5,302,839	53.76
29	.001156	97,449	113	97,393	4,601,896	47.22	29	.000448	98,598	44	98,576	5,204,220	52.78
30	.001183	97,336	115	97,279	4,504,504	46.28	30	.000470	98,554	46	98,531	5,105,644	51.81
31	.001221	97,221	119	97,162	4,407,225	45.33	31	.000488	98,508	48	98,484	5,007,113	50.83
32	.001269	97,103	123	97,041	4,310,063	44.39	32	.000527	98,460	52	98,434	4,908,630	49.85
33	.001316	96,979	128	96,916	4,213,022	43.44	33	.000565	98,408	56	98,380	4,810,196	48.88
34	.001369	96,852	133	96,786	4,116,106	42.50	34	.000613	98,352	60	98,322	4,711,816	47.91
35	.001442	96,719	139	96,649	4,019,321	41.56	35	.000676	98,292	66	98,259	4,613,494	46.94
36	.001510	96,580	146	96,507	3,922,671	40.62	36	.000733	98,225	72	98,189	4,515,236	45.97
37	.001589	96,434	153	96,357	3,826,164	39.68	37	.000804	98,153	79	98,114	4,417,046	45.00
38	.001667	96,281	160	96,200	3,729,807	38.74	38	.000865	98,074	85	98,032	4,318,932	44.04
39	.001749	96,120	168	96,036	3,633,606	37.80	39	.000928	97,990	91	97,944	4,220,900	43.07
40	.001832	95,952	176	95,864	3,537,570	36.87	40	.000991	97,899	97	97,850	4,122,956	42.11
41	.001952	95,776	187	95,683	3,441,706	35.93	41	.001083	97,802	106	97,749	4,025,106	41.16
42	.002096	95,589	200	95,489	3,346,023	35.00	42	.001198	97,696	117	97,637	3,927,357	40.20
43	.002286	95,389	218	95,280	3,250,534	34.08	43	.001331	97,579	130	97,514	3,829,720	39.25
44	.002490	95,171	237	95,053	3,155,254	33.15	44	.001494	97,449	146	97,376	3,732,206	38.30
45	.002727	94,934	259	94,805	3,060,202	32.24	45	.001676	97,303	163	97,222	3,634,830	37.36
46	.003012	94,675	285	94,532	2,965,397	31.32	46	.001869	97,140	182	97,049	3,537,608	36.42
47	.003328	94,390	314	94,233	2,870,865	30.41	47	.002089	96,959	203	96,857	3,440,559	35.48
48	.003672	94,076	345	93,903	2,776,632	29.51	48	.002311	96,756	224	96,644	3,343,701	34.56
49	.004047	93,730	379	93,541	2,682,729	28.62	49	.002543	96,533	246	96,410	3,247,057	33.64
50	.004466	93,351	417	93,143	2,589,188	27.74	50	.002786	96,287	268	96,153	3,150,647	32.72
51	.004948	92,934	460	92,704	2,496,045	26.86	51	.003061	96,019	294	95,872	3,054,494	31.81
52	.005503	92,474	509	92,220	2,403,341	25.99	52	.003371	95,725	323	95,564	2,958,622	30.91
53	.006119	91,965	563	91,684	2,311,121	25.13	53	.003699	95,402	353	95,226	2,863,058	30.01
54	.006776	91,403	619	91,093	2,219,437	24.28	54	.004060	95,049	386	94,856	2,767,832	29.12

Calendar Year 1990 (Continued)

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
55	.007513	90,783	682	90,442	2,128,344	23.44	55	.004433	94,664	420	94,454	2,672,976	28.24
56	.008333	90,101	751	89,726	2,037,902	22.62	56	.004856	94,244	458	94,015	2,578,522	27.36
57	.009244	89,351	826	88,938	1,948,176	21.80	57	.005314	93,786	498	93,537	2,484,507	26.49
58	.010243	88,525	907	88,071	1,859,238	21.00	58	.005789	93,288	540	93,018	2,390,970	25.63
59	.011360	87,618	995	87,120	1,771,167	20.21	59	.006291	92,748	583	92,456	2,297,953	24.78
60	.012546	86,622	1,087	86,079	1,684,047	19.44	60	.006835	92,164	630	91,849	2,205,496	23.93
61	.013846	85,536	1,184	84,943	1,597,968	18.68	61	.007443	91,534	681	91,194	2,113,647	23.09
62	.015265	84,351	1,288	83,707	1,513,024	17.94	62	.008155	90,853	741	90,483	2,022,453	22.26
63	.016788	83,064	1,394	82,366	1,429,317	17.21	63	.008940	90,112	806	89,709	1,931,971	21.44
64	.018400	81,669	1,503	80,918	1,346,951	16.49	64	.009778	89,307	873	88,870	1,842,261	20.63
65	.020151	80,167	1,615	79,359	1,266,033	15.79	65	.010712	88,433	947	87,960	1,753,391	19.83
66	.022077	78,551	1,734	77,684	1,186,674	15.11	66	.011753	87,486	1,028	86,972	1,665,431	19.04
67	.024212	76,817	1,860	75,887	1,108,990	14.44	67	.012915	86,458	1,117	85,900	1,578,459	18.26
68	.026488	74,957	1,985	73,964	1,033,103	13.78	68	.014171	85,341	1,209	84,737	1,492,560	17.49
69	.028924	72,972	2,111	71,916	959,139	13.14	69	.015470	84,132	1,302	83,481	1,407,823	16.73
70	.031568	70,861	2,237	69,742	887,222	12.52	70	.016926	82,830	1,402	82,129	1,324,342	15.99
71	.034426	68,624	2,362	67,443	817,480	11.91	71	.018604	81,428	1,515	80,671	1,242,213	15.26
72	.037736	66,262	2,500	65,011	750,037	11.32	72	.020571	79,914	1,644	79,092	1,161,542	14.53
73	.041527	63,761	2,648	62,437	685,026	10.74	73	.022806	78,270	1,785	77,377	1,082,450	13.83
74	.045549	61,113	2,784	59,721	622,589	10.19	74	.025213	76,485	1,928	75,520	1,005,073	13.14
75	.049998	58,330	2,916	56,871	562,867	9.65	75	.027920	74,556	2,082	73,515	929,552	12.47
76	.054835	55,413	3,039	53,894	505,996	9.13	76	.031006	72,475	2,247	71,351	856,037	11.81
77	.060197	52,375	3,153	50,798	452,102	8.63	77	.034559	70,228	2,427	69,014	784,686	11.17
78	.066103	49,222	3,254	47,595	401,303	8.15	78	.038499	67,801	2,610	66,495	715,672	10.56
79	.072423	45,968	3,329	44,304	353,708	7.69	79	.042773	65,190	2,788	63,796	649,176	9.96
80	.079318	42,639	3,382	40,948	309,405	7.26	80	.047501	62,402	2,964	60,920	585,380	9.38
81	.086776	39,257	3,407	37,554	268,457	6.84	81	.052841	59,438	3,141	57,867	524,460	8.82
82	.094798	35,850	3,399	34,151	230,903	6.44	82	.058883	56,297	3,315	54,640	466,593	8.29
83	.103390	32,452	3,355	30,774	196,752	6.06	83	.065550	52,982	3,473	51,246	411,954	7.78
84	.112596	29,097	3,276	27,459	165,978	5.70	84	.072793	49,509	3,604	47,707	360,708	7.29
85	.122400	25,820	3,160	24,240	138,519	5.36	85	.080699	45,905	3,705	44,053	313,001	6.82
86	.132857	22,660	3,011	21,155	114,279	5.04	86	.089420	42,201	3,774	40,314	268,948	6.37
87	.143907	19,649	2,828	18,236	93,124	4.74	87	.099103	38,427	3,808	36,523	228,634	5.95
88	.155715	16,822	2,619	15,512	74,888	4.45	88	.109659	34,619	3,796	32,721	192,111	5.55
89	.168157	14,202	2,388	13,009	59,376	4.18	89	.121027	30,823	3,730	28,957	159,391	5.17
90	.181227	11,814	2,141	10,744	46,368	3.92	90	.133300	27,092	3,611	25,287	130,433	4.81
91	.195172	9,673	1,888	8,729	35,624	3.68	91	.146601	23,481	3,442	21,760	105,147	4.48
92	.209973	7,785	1,635	6,968	26,895	3.45	92	.161103	20,039	3,228	18,424	83,387	4.16
93	.225577	6,151	1,387	5,457	19,927	3.24	93	.176710	16,810	2,971	15,325	64,963	3.86
94	.241942	4,763	1,152	4,187	14,471	3.04	94	.193328	13,840	2,676	12,502	49,638	3.59
95	.259131	3,611	936	3,143	10,284	2.85	95	.211098	11,164	2,357	9,986	37,136	3.33
96	.277216	2,675	742	2,304	7,141	2.67	96	.230151	8,807	2,027	7,794	27,150	3.08
97	.296255	1,933	573	1,647	4,837	2.50	97	.250643	6,780	1,699	5,931	19,356	2.85
98	.315105	1,361	429	1,146	3,189	2.34	98	.271279	5,081	1,378	4,392	13,426	2.64
99	.333714	932	311	776	2,043	2.19	99	.291934	3,703	1,081	3,162	9,034	2.44
100	.353843	621	220	511	1,267	2.04	100	.314547	2,622	825	2,209	5,872	2.24
101	.377254	401	151	326	756	1.88	101	.341153	1,797	613	1,490	3,662	2.04
102	.405418	250	101	199	430	1.72	102	.373562	1,184	442	963	2,172	1.83
103	.440141	149	65	116	231	1.55	103	.413810	742	307	588	1,209	1.63
104	.479073	83	40	63	115	1.38	104	.459309	435	200	335	621	1.43
105	.516423	43	22	32	52	1.20	105	.506024	235	119	176	286	1.22
106	.647113	21	14	14	20	0.94	106	.641051	116	75	79	110	0.95
107	.769423	7	6	5	6	0.76	107	.770644	42	32	26	31	0.76
108	.881875	2	1	1	1	0.62	108	.882447	10	9	5	6	0.62
109	1.000000	0	0	0	0	0.50	109	1.000000	1	1	1	1	0.50

Calendar Year 2000

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
0	.005595	100,000	560	99,552	7,642,582	76.43	0	.004558	100,000	456	99,635	8,165,125	81.65
1	.000369	99,440	37	99,422	7,543,030	75.85	1	.000391	99,544	39	99,525	8,065,490	81.02
2	.000289	99,404	29	99,389	7,443,607	74.88	2	.000253	99,505	25	99,493	7,965,965	80.06
3	.000251	99,375	25	99,363	7,344,218	73.90	3	.000196	99,480	20	99,470	7,866,472	79.08
4	.000183	99,350	18	99,341	7,244,855	72.92	4	.000149	99,460	15	99,453	7,767,002	78.09
5	.000130	99,332	13	99,325	7,145,514	71.94	5	.000108	99,446	11	99,440	7,667,549	77.10
6	.000106	99,319	11	99,314	7,046,189	70.95	6	.000100	99,435	10	99,430	7,568,109	76.11
7	.000091	99,308	9	99,304	6,946,875	69.95	7	.000092	99,425	9	99,420	7,468,679	75.12
8	.000076	99,299	8	99,296	6,847,571	68.96	8	.000084	99,416	8	99,412	7,369,258	74.13
9	.000076	99,292	8	99,288	6,748,276	67.96	9	.000084	99,407	8	99,403	7,269,847	73.13
10	.000095	99,284	9	99,280	6,648,988	66.97	10	.000078	99,399	8	99,395	7,170,443	72.14
11	.000095	99,275	9	99,270	6,549,708	65.98	11	.000082	99,391	8	99,387	7,071,048	71.14
12	.000147	99,266	15	99,258	6,450,438	64.98	12	.000112	99,383	11	99,378	6,971,661	70.15
13	.000223	99,251	22	99,240	6,351,180	63.99	13	.000136	99,372	13	99,365	6,872,283	69.16
14	.000320	99,229	32	99,213	6,251,940	63.01	14	.000166	99,359	16	99,350	6,772,918	68.17
15	.000398	99,197	39	99,177	6,152,727	62.03	15	.000225	99,342	22	99,331	6,673,568	67.18
16	.000565	99,158	56	99,130	6,053,550	61.05	16	.000258	99,320	26	99,307	6,574,237	66.19
17	.000569	99,101	56	99,073	5,954,420	60.08	17	.000280	99,294	28	99,280	6,474,930	65.21
18	.000691	99,045	68	99,011	5,855,347	59.12	18	.000295	99,266	29	99,252	6,375,650	64.23
19	.000743	98,977	74	98,940	5,756,336	58.16	19	.000286	99,237	28	99,223	6,276,398	63.25
20	.000806	98,903	80	98,863	5,657,396	57.20	20	.000317	99,209	31	99,193	6,177,175	62.26
21	.000731	98,823	72	98,787	5,558,533	56.25	21	.000311	99,177	31	99,162	6,077,982	61.28
22	.000832	98,751	82	98,710	5,459,745	55.29	22	.000309	99,146	31	99,131	5,978,821	60.30
23	.000851	98,669	84	98,627	5,361,035	54.33	23	.000317	99,116	31	99,100	5,879,689	59.32
24	.000896	98,585	88	98,541	5,262,408	53.38	24	.000326	99,084	32	99,068	5,780,590	58.34
25	.000877	98,497	86	98,454	5,163,867	52.43	25	.000301	99,052	30	99,037	5,681,521	57.36
26	.000878	98,410	86	98,367	5,065,413	51.47	26	.000309	99,022	31	99,007	5,582,484	56.38
27	.000877	98,324	86	98,281	4,967,046	50.52	27	.000326	98,992	32	98,975	5,483,478	55.39
28	.000893	98,238	88	98,194	4,868,765	49.56	28	.000332	98,959	33	98,943	5,384,502	54.41
29	.000917	98,150	90	98,105	4,770,571	48.60	29	.000348	98,926	34	98,909	5,285,559	53.43
30	.001140	98,060	112	98,004	4,672,466	47.65	30	.000448	98,892	44	98,870	5,186,650	52.45
31	.001181	97,948	116	97,890	4,574,462	46.70	31	.000464	98,848	46	98,825	5,087,780	51.47
32	.001231	97,833	120	97,772	4,476,572	45.76	32	.000503	98,802	50	98,777	4,988,956	50.49
33	.001282	97,712	125	97,650	4,378,799	44.81	33	.000541	98,752	53	98,725	4,890,179	49.52
34	.001342	97,587	131	97,521	4,281,150	43.87	34	.000588	98,699	58	98,670	4,791,453	48.55
35	.001447	97,456	141	97,385	4,183,628	42.93	35	.000639	98,641	63	98,609	4,692,784	47.57
36	.001520	97,315	148	97,241	4,086,243	41.99	36	.000696	98,578	69	98,543	4,594,174	46.60
37	.001599	97,167	155	97,089	3,989,002	41.05	37	.000762	98,509	75	98,471	4,495,631	45.64
38	.001667	97,012	162	96,931	3,891,912	40.12	38	.000813	98,434	80	98,394	4,397,160	44.67
39	.001735	96,850	168	96,766	3,794,981	39.18	39	.000864	98,354	85	98,311	4,298,766	43.71
40	.001876	96,682	181	96,591	3,698,215	38.25	40	.000949	98,269	93	98,222	4,200,455	42.74
41	.001986	96,501	192	96,405	3,601,624	37.32	41	.001030	98,176	101	98,125	4,102,232	41.78
42	.002120	96,309	204	96,207	3,505,219	36.40	42	.001135	98,075	111	98,019	4,004,107	40.83
43	.002309	96,105	222	95,994	3,409,012	35.47	43	.001262	97,963	124	97,901	3,906,088	39.87
44	.002522	95,883	242	95,762	3,313,018	34.55	44	.001427	97,840	140	97,770	3,808,187	38.92
45	.002262	95,641	216	95,533	3,217,256	33.64	45	.001410	97,700	138	97,631	3,710,417	37.98
46	.002496	95,425	238	95,306	3,121,723	32.71	46	.001578	97,562	154	97,485	3,612,786	37.03
47	.002755	95,187	262	95,055	3,026,418	31.79	47	.001769	97,408	172	97,322	3,515,300	36.09
48	.003030	94,924	288	94,781	2,931,362	30.88	48	.001956	97,236	190	97,141	3,417,978	35.15
49	.003330	94,637	315	94,479	2,836,581	29.97	49	.002152	97,046	209	96,941	3,320,837	34.22
50	.003749	94,322	354	94,145	2,742,102	29.07	50	.002408	96,837	233	96,720	3,223,896	33.29
51	.004142	93,968	389	93,773	2,647,957	28.18	51	.002643	96,604	255	96,476	3,127,176	32.37
52	.004602	93,579	431	93,364	2,554,184	27.29	52	.002916	96,348	281	96,208	3,030,699	31.46
53	.005113	93,148	476	92,910	2,460,820	26.42	53	.003202	96,068	308	95,914	2,934,491	30.55
54	.005664	92,672	525	92,410	2,367,910	25.55	54	.003517	95,760	337	95,592	2,838,578	29.64

Calendar Year 2000 (Continued)

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
55	.005857	92,147	540	91,877	2,275,501	24.69	55	.003958	95,423	378	95,234	2,742,986	28.75
56	.006507	91,607	596	91,309	2,183,623	23.84	56	.004339	95,046	412	94,839	2,647,752	27.86
57	.007233	91,011	658	90,682	2,092,314	22.99	57	.004749	94,633	449	94,408	2,552,912	26.98
58	.008035	90,353	726	89,990	2,001,632	22.15	58	.005175	94,184	487	93,940	2,458,504	26.10
59	.008925	89,627	800	89,227	1,911,642	21.33	59	.005624	93,696	527	93,433	2,364,564	25.24
60	.009999	88,827	888	88,383	1,822,415	20.52	60	.006127	93,169	571	92,884	2,271,131	24.38
61	.011058	87,939	972	87,453	1,734,032	19.72	61	.006669	92,598	618	92,290	2,178,247	23.52
62	.012206	86,966	1,061	86,436	1,646,579	18.93	62	.007311	91,981	672	91,645	2,085,958	22.68
63	.013412	85,905	1,152	85,329	1,560,143	18.16	63	.008014	91,308	732	90,943	1,994,313	21.84
64	.014680	84,753	1,244	84,131	1,474,815	17.40	64	.008766	90,577	794	90,180	1,903,370	21.01
65	.016525	83,509	1,380	82,819	1,390,684	16.65	65	.009673	89,783	868	89,349	1,813,190	20.20
66	.018079	82,129	1,485	81,386	1,307,865	15.92	66	.010618	88,914	944	88,442	1,723,842	19.39
67	.019794	80,644	1,596	79,846	1,226,479	15.21	67	.011667	87,970	1,026	87,457	1,635,400	18.59
68	.021646	79,048	1,711	78,192	1,146,633	14.51	68	.012801	86,944	1,113	86,387	1,547,943	17.80
69	.023645	77,337	1,829	76,422	1,068,441	13.82	69	.013962	85,831	1,198	85,232	1,461,555	17.03
70	.027648	75,508	2,088	74,464	992,019	13.14	70	.015503	84,632	1,312	83,976	1,376,324	16.26
71	.030239	73,420	2,220	72,310	917,555	12.50	71	.017042	83,320	1,420	82,610	1,292,347	15.51
72	.033201	71,200	2,364	70,018	845,245	11.87	72	.018849	81,900	1,544	81,129	1,209,737	14.77
73	.036494	68,836	2,512	67,580	775,226	11.26	73	.020896	80,357	1,679	79,517	1,128,608	14.04
74	.040045	66,324	2,656	64,996	707,646	10.67	74	.023106	78,678	1,818	77,769	1,049,091	13.33
75	.043293	63,668	2,756	62,290	642,650	10.09	75	.025782	76,860	1,982	75,869	971,322	12.64
76	.047582	60,912	2,898	59,463	580,360	9.53	76	.028651	74,878	2,145	73,805	895,453	11.96
77	.052330	58,013	3,036	56,496	520,898	8.98	77	.031967	72,733	2,325	71,570	821,648	11.30
78	.057581	54,978	3,166	53,395	464,402	8.45	78	.035669	70,408	2,511	69,152	750,078	10.65
79	.063299	51,812	3,280	50,172	411,007	7.93	79	.039693	67,896	2,695	66,549	680,926	10.03
80	.074289	48,532	3,605	46,730	360,835	7.43	80	.046526	65,201	3,034	63,685	614,377	9.42
81	.081246	44,927	3,650	43,102	314,106	6.99	81	.051773	62,168	3,219	60,559	550,692	8.86
82	.088818	41,277	3,666	39,444	271,004	6.57	82	.057697	58,949	3,401	57,249	490,134	8.31
83	.097177	37,611	3,655	35,783	231,560	6.16	83	.064263	55,548	3,570	53,763	432,885	7.79
84	.105912	33,956	3,596	32,158	195,777	5.77	84	.071369	51,978	3,710	50,124	379,122	7.29
85	.122063	30,359	3,706	28,507	163,619	5.39	85	.080986	48,269	3,909	46,314	328,998	6.82
86	.132326	26,654	3,527	24,890	135,113	5.07	86	.089718	44,360	3,980	42,370	282,684	6.37
87	.143313	23,127	3,314	21,470	110,222	4.77	87	.099369	40,380	4,013	38,373	240,314	5.95
88	.155017	19,812	3,071	18,277	88,753	4.48	88	.109857	36,367	3,995	34,370	201,941	5.55
89	.167184	16,741	2,799	15,342	70,476	4.21	89	.121150	32,372	3,922	30,411	167,571	5.18
90	.180162	13,942	2,512	12,686	55,134	3.95	90	.133268	28,450	3,791	26,554	137,160	4.82
91	.193881	11,430	2,216	10,322	42,448	3.71	91	.146487	24,659	3,612	22,853	110,606	4.49
92	.208385	9,214	1,920	8,254	32,126	3.49	92	.160883	21,046	3,386	19,353	87,753	4.17
93	.223631	7,294	1,631	6,479	23,871	3.27	93	.176356	17,660	3,115	16,103	68,400	3.87
94	.239582	5,663	1,357	4,985	17,393	3.07	94	.192823	14,546	2,805	13,144	52,296	3.60
95	.256288	4,306	1,104	3,754	12,408	2.88	95	.210416	11,741	2,471	10,506	39,152	3.33
96	.273798	3,203	877	2,764	8,654	2.70	96	.229256	9,271	2,125	8,208	28,647	3.09
97	.292147	2,326	679	1,986	5,890	2.53	97	.249501	7,145	1,783	6,254	20,439	2.86
98	.311291	1,646	512	1,390	3,904	2.37	98	.271030	5,363	1,453	4,636	14,185	2.65
99	.331172	1,134	375	946	2,514	2.22	99	.293776	3,909	1,148	3,335	9,549	2.44
100	.355165	758	269	624	1,568	2.07	100	.318822	2,761	880	2,321	6,214	2.25
101	.376762	489	184	397	944	1.93	101	.344440	1,881	648	1,557	3,894	2.07
102	.399142	305	122	244	547	1.80	102	.371671	1,233	458	1,004	2,337	1.90
103	.422250	183	77	144	303	1.66	103	.400418	775	310	620	1,333	1.72
104	.446023	106	47	82	159	1.50	104	.430577	464	200	364	714	1.54
105	.470530	59	28	45	77	1.31	105	.462272	264	122	203	349	1.32
106	.599795	31	19	22	32	1.02	106	.599241	142	85	100	146	1.03
107	.729235	12	9	8	10	0.81	107	.726299	57	41	36	46	0.82
108	.867145	3	3	2	2	0.63	108	.847867	16	13	9	10	0.65
109	1.000000	0	0	0	0	0.50	109	1.000000	2	2	1	1	0.50

Calendar Year 2010

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
0	.004274	100,000	427	99,658	7,775,976	77.76	0	.003649	100,000	365	99,708	8,241,479	82.41
1	.000274	99,573	27	99,559	7,676,318	77.09	1	.000312	99,635	31	99,620	8,141,771	81.72
2	.000216	99,545	22	99,534	7,576,759	76.11	2	.000203	99,604	20	99,594	8,042,152	80.74
3	.000187	99,524	19	99,514	7,477,224	75.13	3	.000159	99,584	16	99,576	7,942,558	79.76
4	.000137	99,505	14	99,498	7,377,710	74.14	4	.000120	99,568	12	99,562	7,842,982	78.77
5	.000097	99,492	10	99,487	7,278,211	73.15	5	.000089	99,556	9	99,551	7,743,420	77.78
6	.000080	99,482	8	99,478	7,178,725	72.16	6	.000083	99,547	8	99,543	7,643,869	76.79
7	.000069	99,474	7	99,471	7,079,247	71.17	7	.000076	99,539	8	99,535	7,544,326	75.79
8	.000058	99,467	6	99,464	6,979,776	70.17	8	.000070	99,531	7	99,528	7,444,791	74.80
9	.000058	99,461	6	99,458	6,880,312	69.18	9	.000070	99,524	7	99,521	7,345,263	73.80
10	.000073	99,455	7	99,452	6,780,854	68.18	10	.000068	99,517	7	99,514	7,245,743	72.81
11	.000073	99,448	7	99,445	6,681,402	67.18	11	.000070	99,511	7	99,507	7,146,229	71.81
12	.000113	99,441	11	99,435	6,581,957	66.19	12	.000096	99,504	10	99,499	7,046,722	70.82
13	.000171	99,430	17	99,421	6,482,522	65.20	13	.000116	99,494	12	99,488	6,947,223	69.83
14	.000245	99,413	24	99,401	6,383,101	64.21	14	.000143	99,482	14	99,475	6,847,735	68.83
15	.000310	99,388	31	99,373	6,283,700	63.22	15	.000196	99,468	20	99,458	6,748,260	67.84
16	.000441	99,358	44	99,336	6,184,327	62.24	16	.000225	99,449	22	99,437	6,648,801	66.86
17	.000443	99,314	44	99,292	6,084,991	61.27	17	.000244	99,426	24	99,414	6,549,364	65.87
18	.000541	99,270	54	99,243	5,985,700	60.30	18	.000258	99,402	26	99,389	6,449,950	64.89
19	.000582	99,216	58	99,187	5,886,457	59.33	19	.000251	99,376	25	99,364	6,350,561	63.90
20	.000655	99,158	65	99,126	5,787,269	58.36	20	.000279	99,351	28	99,338	6,251,197	62.92
21	.000597	99,093	59	99,064	5,688,143	57.40	21	.000274	99,324	27	99,310	6,151,859	61.94
22	.000678	99,034	67	99,001	5,589,080	56.44	22	.000272	99,296	27	99,283	6,052,549	60.95
23	.000693	98,967	69	98,933	5,490,079	55.47	23	.000280	99,269	28	99,256	5,953,266	59.97
24	.000728	98,899	72	98,863	5,391,146	54.51	24	.000288	99,242	29	99,227	5,854,011	58.99
25	.000769	98,827	76	98,789	5,292,284	53.55	25	.000268	99,213	27	99,200	5,754,783	58.00
26	.000768	98,751	76	98,713	5,193,495	52.59	26	.000275	99,186	27	99,173	5,655,583	57.02
27	.000766	98,675	76	98,637	5,094,782	51.63	27	.000290	99,159	29	99,145	5,556,411	56.04
28	.000778	98,599	77	98,561	4,996,145	50.67	28	.000295	99,130	29	99,116	5,457,266	55.05
29	.000798	98,522	79	98,483	4,897,585	49.71	29	.000310	99,101	31	99,086	5,358,150	54.07
30	.001077	98,444	106	98,391	4,799,102	48.75	30	.000414	99,070	41	99,050	5,259,064	53.08
31	.001115	98,338	110	98,283	4,700,711	47.80	31	.000429	99,029	43	99,008	5,160,014	52.11
32	.001162	98,228	114	98,171	4,602,428	46.85	32	.000465	98,987	46	98,964	5,061,006	51.13
33	.001210	98,114	119	98,055	4,504,257	45.91	33	.000501	98,941	50	98,916	4,962,042	50.15
34	.001266	97,995	124	97,933	4,406,202	44.96	34	.000545	98,891	54	98,864	4,863,126	49.18
35	.001416	97,871	139	97,802	4,308,269	44.02	35	.000599	98,837	59	98,808	4,764,262	48.20
36	.001487	97,733	145	97,660	4,210,467	43.08	36	.000652	98,778	64	98,746	4,665,454	47.23
37	.001565	97,587	153	97,511	4,112,807	42.14	37	.000713	98,714	70	98,679	4,566,708	46.26
38	.001632	97,435	159	97,355	4,015,296	41.21	38	.000762	98,643	75	98,606	4,468,029	45.29
39	.001700	97,276	165	97,193	3,917,941	40.28	39	.000811	98,568	80	98,528	4,369,423	44.33
40	.001795	97,110	174	97,023	3,820,749	39.34	40	.000871	98,488	86	98,446	4,270,895	43.36
41	.001901	96,936	184	96,844	3,723,726	38.41	41	.000946	98,403	93	98,356	4,172,449	42.40
42	.002031	96,752	197	96,653	3,626,882	37.49	42	.001042	98,310	102	98,258	4,074,093	41.44
43	.002214	96,555	214	96,448	3,530,229	36.56	43	.001157	98,207	114	98,150	3,975,835	40.48
44	.002420	96,341	233	96,225	3,433,780	35.64	44	.001305	98,094	128	98,030	3,877,684	39.53
45	.002027	96,108	195	96,011	3,337,555	34.73	45	.001244	97,966	122	97,905	3,779,655	38.58
46	.002241	95,913	215	95,806	3,241,545	33.80	46	.001392	97,844	136	97,776	3,681,750	37.63
47	.002473	95,698	237	95,580	3,145,739	32.87	47	.001558	97,708	152	97,631	3,583,975	36.68
48	.002721	95,462	260	95,332	3,050,159	31.95	48	.001723	97,555	168	97,471	3,486,343	35.74
49	.002991	95,202	285	95,060	2,954,827	31.04	49	.001893	97,387	184	97,295	3,388,872	34.80
50	.003201	94,917	304	94,765	2,859,767	30.13	50	.002137	97,203	208	97,099	3,291,577	33.86
51	.003538	94,613	335	94,446	2,765,002	29.22	51	.002345	96,995	227	96,881	3,194,478	32.93
52	.003931	94,279	371	94,093	2,670,555	28.33	52	.002585	96,768	250	96,643	3,097,596	32.01
53	.004368	93,908	410	93,703	2,576,462	27.44	53	.002838	96,518	274	96,381	3,000,954	31.09
54	.004838	93,498	452	93,272	2,482,759	26.55	54	.003121	96,244	300	96,094	2,904,573	30.18

Calendar Year 2010 (Continued)

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
55	.004968	92,046	462	92,814	2,389,487	25.68	55	.003531	95,943	339	95,774	2,808,479	29.27
56	.005516	92,583	511	92,328	2,296,673	24.81	56	.003875	95,605	370	95,419	2,712,705	28.37
57	.006132	92,073	565	91,790	2,204,345	23.94	57	.004242	95,234	404	95,032	2,617,286	27.48
58	.006814	91,508	624	91,196	2,112,555	23.09	58	.004627	94,830	439	94,611	2,522,254	26.60
59	.007569	90,885	688	90,541	2,021,358	22.24	59	.005033	94,391	475	94,154	2,427,643	25.72
60	.008371	90,197	755	89,819	1,930,818	21.41	60	.005576	93,916	524	93,654	2,333,489	24.85
61	.009256	89,442	828	89,028	1,840,998	20.58	61	.006073	93,393	567	93,109	2,239,835	23.98
62	.010215	88,614	905	88,161	1,751,971	19.77	62	.006657	92,825	618	92,516	2,146,726	23.13
63	.011220	87,709	984	87,217	1,663,810	18.97	63	.007296	92,207	673	91,871	2,054,210	22.28
64	.012267	86,725	1,064	86,193	1,576,593	18.18	64	.007987	91,535	731	91,169	1,962,339	21.44
65	.014020	85,661	1,201	85,060	1,490,400	17.40	65	.008818	90,804	801	90,403	1,871,169	20.61
66	.015351	84,460	1,297	83,812	1,405,340	16.64	66	.009674	90,003	871	89,568	1,780,766	19.79
67	.016820	83,163	1,399	82,464	1,321,528	15.89	67	.010626	89,132	947	88,659	1,691,199	18.97
68	.018401	81,764	1,505	81,012	1,239,065	15.15	68	.011657	88,185	1,028	87,671	1,602,540	18.17
69	.020067	80,260	1,611	79,455	1,158,052	14.43	69	.012715	87,157	1,108	86,603	1,514,869	17.38
70	.024272	78,649	1,909	77,695	1,078,598	13.71	70	.014360	86,049	1,236	85,431	1,428,266	16.60
71	.026552	76,740	2,038	75,722	1,000,903	13.04	71	.015786	84,813	1,339	84,144	1,342,835	15.83
72	.029187	74,703	2,180	73,613	925,181	12.38	72	.017463	83,474	1,458	82,746	1,258,691	15.08
73	.032092	72,522	2,327	71,359	851,569	11.74	73	.019356	82,017	1,587	81,223	1,175,946	14.34
74	.035197	70,195	2,471	68,960	780,210	11.11	74	.021397	80,429	1,721	79,569	1,094,723	13.61
75	.039300	67,724	2,662	66,394	711,250	10.50	75	.024264	78,708	1,910	77,753	1,015,154	12.90
76	.043233	65,063	2,813	63,656	644,857	9.91	76	.026955	76,798	2,070	75,763	937,401	12.21
77	.047519	62,250	2,958	60,771	581,200	9.34	77	.030067	74,728	2,247	73,605	861,637	11.53
78	.052265	59,292	3,099	57,742	520,429	8.78	78	.033536	72,481	2,431	71,266	788,032	10.87
79	.057456	56,193	3,229	54,579	462,687	8.23	79	.037317	70,051	2,614	68,744	716,766	10.23
80	.069187	52,964	3,664	51,132	408,108	7.71	80	.044211	67,437	2,981	65,946	648,022	9.61
81	.075818	49,300	3,738	47,431	356,976	7.24	81	.049221	64,455	3,173	62,869	582,076	9.03
82	.082961	45,562	3,780	43,672	309,545	6.79	82	.054869	61,283	3,362	59,601	519,207	8.47
83	.090646	41,782	3,787	39,889	265,873	6.36	83	.061112	57,920	3,540	56,150	459,606	7.94
84	.098806	37,995	3,754	36,118	225,984	5.95	84	.067872	54,381	3,691	52,535	403,456	7.42
85	.117568	34,241	4,026	32,228	189,867	5.55	85	.079049	50,690	4,007	48,686	350,920	6.92
86	.127568	30,215	3,854	28,288	157,639	5.22	86	.087599	46,683	4,089	44,638	302,234	6.47
87	.138199	26,361	3,643	24,539	129,351	4.91	87	.097062	42,593	4,134	40,526	257,596	6.05
88	.149478	22,718	3,396	21,020	104,812	4.61	88	.107384	38,459	4,130	36,394	217,070	5.64
89	.161451	19,322	3,120	17,762	83,792	4.34	89	.118481	34,329	4,067	32,296	180,675	5.26
90	.174047	16,202	2,820	14,792	66,030	4.08	90	.130485	30,262	3,949	28,288	148,380	4.90
91	.187144	13,382	2,504	12,130	51,238	3.83	91	.143301	26,313	3,771	24,428	120,092	4.56
92	.201048	10,878	2,187	9,784	39,108	3.60	92	.157269	22,542	3,545	20,770	95,664	4.24
93	.215976	8,691	1,877	7,752	29,323	3.37	93	.172513	18,997	3,277	17,359	74,895	3.94
94	.231431	6,814	1,577	6,025	21,571	3.17	94	.188678	15,720	2,966	14,237	57,536	3.66
95	.247799	5,237	1,298	4,588	15,545	2.97	95	.206063	12,754	2,628	11,440	43,299	3.39
96	.264687	3,939	1,043	3,418	10,957	2.78	96	.224560	10,126	2,274	8,989	31,859	3.15
97	.282475	2,897	818	2,487	7,539	2.60	97	.244391	7,852	1,919	6,893	22,870	2.91
98	.301179	2,078	626	1,765	5,052	2.43	98	.265438	5,933	1,575	5,146	15,978	2.69
99	.320394	1,452	465	1,220	3,286	2.26	99	.287811	4,358	1,254	3,731	10,832	2.49
100	.350161	987	346	814	2,067	2.09	100	.313559	3,104	973	2,617	7,101	2.29
101	.371936	641	239	522	1,252	1.95	101	.338803	2,131	722	1,770	4,484	2.10
102	.394669	403	159	323	730	1.81	102	.365654	1,409	515	1,151	2,714	1.93
103	.418337	244	102	193	407	1.67	103	.394022	894	352	718	1,563	1.75
104	.442891	142	63	110	214	1.51	104	.423811	542	230	427	845	1.56
105	.468392	79	37	61	104	1.31	105	.455160	312	142	241	418	1.34
106	.598589	42	25	29	43	1.03	106	.590321	170	100	120	177	1.04
107	.729031	17	12	11	14	0.81	107	.717211	70	50	45	58	0.83
108	.859998	5	4	3	3	0.64	108	.845012	20	17	11	13	0.65
109	1.000000	1	1	0	0	0.50	109	1.000000	3	3	2	2	0.50

Calendar Year 2025

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
0	.003312	100,000	331	99,735	7,896,849	78.97	0	.002910	100,000	291	99,767	8,328,599	83.29
1	.000212	99,669	21	99,658	7,797,114	78.23	1	.000251	99,709	25	99,696	8,228,832	82.53
2	.000169	99,648	17	99,639	7,697,455	77.25	2	.000165	99,684	16	99,676	8,129,135	81.55
3	.000146	99,631	15	99,624	7,597,816	76.26	3	.000130	99,668	13	99,661	8,029,460	80.56
4	.000108	99,616	11	99,611	7,498,192	75.27	4	.000099	99,655	10	99,650	7,929,798	79.57
5	.000077	99,606	8	99,602	7,398,582	74.28	5	.000074	99,645	7	99,641	7,830,149	78.58
6	.000064	99,598	6	99,595	7,298,980	73.28	6	.000069	99,637	7	99,634	7,730,508	77.59
7	.000056	99,592	6	99,589	7,199,385	72.29	7	.000064	99,630	6	99,627	7,630,874	76.59
8	.000047	99,586	5	99,584	7,099,796	71.29	8	.000059	99,624	6	99,621	7,531,246	75.60
9	.000047	99,581	5	99,579	7,000,213	70.30	9	.000059	99,618	6	99,615	7,431,625	74.60
10	.000060	99,577	6	99,574	6,900,634	69.30	10	.000059	99,612	6	99,609	7,332,010	73.61
11	.000060	99,571	6	99,568	6,801,060	68.30	11	.000061	99,606	6	99,603	7,232,401	72.61
12	.000093	99,565	9	99,560	6,701,493	67.31	12	.000084	99,600	8	99,596	7,132,797	71.61
13	.000141	99,555	14	99,548	6,601,933	66.31	13	.000102	99,592	10	99,587	7,033,201	70.62
14	.000204	99,541	20	99,531	6,502,384	65.32	14	.000126	99,582	12	99,576	6,933,614	69.63
15	.000260	99,521	26	99,508	6,402,853	64.34	15	.000173	99,569	17	99,561	6,834,039	68.64
16	.000372	99,495	37	99,477	6,303,345	63.35	16	.000200	99,552	20	99,542	6,734,478	67.65
17	.000376	99,458	37	99,439	6,203,869	62.38	17	.000218	99,532	22	99,521	6,634,936	66.66
18	.000461	99,421	46	99,398	6,104,429	61.40	18	.000231	99,511	23	99,499	6,535,415	65.68
19	.000497	99,375	49	99,350	6,005,031	60.43	19	.000226	99,488	23	99,476	6,435,916	64.69
20	.000566	99,326	56	99,297	5,905,681	59.46	20	.000250	99,465	25	99,453	6,336,439	63.71
21	.000517	99,269	51	99,244	5,806,384	58.49	21	.000247	99,440	25	99,428	6,236,987	62.72
22	.000585	99,218	58	99,189	5,707,140	57.52	22	.000245	99,416	24	99,403	6,137,559	61.74
23	.000598	99,160	59	99,130	5,607,951	56.55	23	.000252	99,391	25	99,379	6,038,155	60.75
24	.000629	99,100	62	99,069	5,508,821	55.59	24	.000259	99,366	26	99,353	5,938,776	59.77
25	.000682	99,038	67	99,004	5,409,752	54.62	25	.000241	99,341	24	99,329	5,839,423	58.78
26	.000682	98,971	67	98,937	5,310,747	53.66	26	.000247	99,317	25	99,304	5,740,094	57.80
27	.000679	98,903	67	98,870	5,211,810	52.70	27	.000261	99,292	26	99,279	5,640,790	56.81
28	.000691	98,836	68	98,802	5,112,941	51.73	28	.000266	99,266	26	99,253	5,541,511	55.82
29	.000710	98,768	70	98,733	5,014,139	50.77	29	.000281	99,240	28	99,226	5,442,258	54.84
30	.000977	98,698	96	98,649	4,915,406	49.80	30	.000381	99,212	38	99,193	5,343,032	53.85
31	.001012	98,601	100	98,551	4,816,757	48.85	31	.000395	99,174	39	99,154	5,243,839	52.88
32	.001055	98,501	104	98,449	4,718,206	47.90	32	.000428	99,135	42	99,114	5,144,685	51.90
33	.001098	98,398	108	98,344	4,619,756	46.95	33	.000460	99,092	46	99,070	5,045,571	50.92
34	.001149	98,290	113	98,233	4,521,413	46.00	34	.000501	99,047	50	99,022	4,946,502	49.94
35	.001304	98,177	128	98,113	4,423,180	45.05	35	.000552	98,997	55	98,970	4,847,480	48.97
36	.001368	98,049	134	97,981	4,325,067	44.11	36	.000601	98,943	59	98,913	4,748,510	47.99
37	.001439	97,914	141	97,844	4,227,085	43.17	37	.000658	98,883	65	98,851	4,649,597	47.02
38	.001501	97,773	147	97,700	4,129,242	42.23	38	.000703	98,818	69	98,783	4,550,747	46.05
39	.001563	97,627	153	97,550	4,031,542	41.30	39	.000748	98,749	74	98,712	4,451,963	45.08
40	.001638	97,474	160	97,394	3,933,991	40.36	40	.000797	98,675	79	98,635	4,353,252	44.12
41	.001735	97,314	169	97,230	3,836,597	39.42	41	.000866	98,596	85	98,553	4,254,616	43.15
42	.001855	97,145	180	97,055	3,739,367	38.49	42	.000954	98,511	94	98,464	4,156,063	42.19
43	.002022	96,965	196	96,867	3,642,312	37.56	43	.001059	98,417	104	98,365	4,057,599	41.23
44	.002212	96,769	214	96,662	3,545,444	36.64	44	.001194	98,313	117	98,254	3,959,234	40.27
45	.001808	96,555	175	96,468	3,448,782	35.72	45	.001124	98,195	110	98,140	3,860,980	39.32
46	.002012	96,381	194	96,284	3,352,314	34.78	46	.001258	98,085	123	98,023	3,762,840	38.36
47	.002221	96,187	214	96,080	3,256,030	33.85	47	.001411	97,961	138	97,892	3,664,817	37.41
48	.002443	95,973	234	95,856	3,159,950	32.93	48	.001560	97,823	153	97,747	3,566,925	36.46
49	.002685	95,739	257	95,610	3,064,094	32.00	49	.001719	97,671	168	97,587	3,469,178	35.52
50	.002821	95,482	269	95,347	2,968,484	31.09	50	.001939	97,503	189	97,408	3,371,592	34.58
51	.003115	95,212	297	95,064	2,873,137	30.18	51	.002129	97,314	207	97,210	3,274,183	33.65
52	.003460	94,916	328	94,752	2,778,073	29.27	52	.002348	97,106	228	96,992	3,176,973	32.72
53	.003844	94,587	364	94,406	2,683,322	28.37	53	.002578	96,878	250	96,754	3,079,981	31.79
54	.004258	94,224	401	94,023	2,588,916	27.48	54	.002833	96,629	274	96,492	2,983,227	30.87

Calendar Year 2025 (Continued)

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
55	.004367	93,823	410	93,618	2,494,893	26.59	55	.003186	96,355	307	96,202	2,886,736	29.96
56	.004848	93,413	453	93,186	2,401,275	25.71	56	.003497	96,048	336	95,880	2,790,534	29.05
57	.005391	92,960	501	92,709	2,308,089	24.83	57	.003833	95,712	367	95,529	2,694,654	28.15
58	.005993	92,459	554	92,182	2,215,379	23.96	58	.004185	95,345	399	95,146	2,599,125	27.26
59	.006659	91,905	612	91,599	2,123,198	23.10	59	.004557	94,946	433	94,730	2,503,979	26.37
60	.007341	91,293	670	90,958	2,031,599	22.25	60	.005084	94,514	481	94,273	2,409,249	25.49
61	.008119	90,623	736	90,255	1,940,641	21.41	61	.005539	94,033	521	93,773	2,314,976	24.62
62	.008957	89,887	805	89,484	1,850,387	20.59	62	.006074	93,512	568	93,228	2,221,203	23.75
63	.009836	89,082	876	88,644	1,760,902	19.77	63	.006657	92,944	619	92,635	2,127,975	22.90
64	.010763	88,205	949	87,731	1,672,259	18.96	64	.007279	92,326	672	91,990	2,035,340	22.05
65	.012409	87,256	1,083	86,715	1,584,528	18.16	65	.008027	91,654	736	91,286	1,943,350	21.20
66	.013567	86,173	1,169	85,589	1,497,813	17.38	66	.008811	90,918	801	90,517	1,852,065	20.37
67	.014860	85,004	1,263	84,373	1,412,224	16.61	67	.009682	90,117	872	89,681	1,761,547	19.55
68	.016259	83,741	1,362	83,060	1,327,852	15.86	68	.010622	89,244	948	88,770	1,671,867	18.73
69	.017737	82,380	1,461	81,649	1,244,791	15.11	69	.011587	88,296	1,023	87,785	1,583,097	17.93
70	.021687	80,918	1,755	80,041	1,163,142	14.37	70	.013196	87,273	1,152	86,697	1,495,312	17.13
71	.023717	79,164	1,877	78,225	1,083,101	13.68	71	.014507	86,122	1,249	85,497	1,408,614	16.36
72	.026050	77,286	2,013	76,279	1,004,877	13.00	72	.016048	84,872	1,362	84,191	1,323,118	15.59
73	.028601	75,273	2,153	74,196	928,597	12.34	73	.017786	83,510	1,485	82,768	1,238,926	14.84
74	.031363	73,120	2,293	71,973	854,401	11.68	74	.019664	82,025	1,613	81,218	1,156,159	14.10
75	.035442	70,827	2,510	69,572	782,427	11.05	75	.022430	80,412	1,804	79,510	1,074,940	13.37
76	.039229	68,316	2,680	66,976	712,856	10.43	76	.024918	78,608	1,959	77,629	995,430	12.66
77	.043158	65,636	2,833	64,220	645,879	9.84	77	.027801	76,650	2,131	75,584	917,801	11.97
78	.047476	62,804	2,982	61,313	581,659	9.26	78	.031013	74,519	2,311	73,363	842,217	11.30
79	.052078	59,822	3,115	58,264	520,346	8.70	79	.034482	72,208	2,490	70,963	768,854	10.65
80	.063199	56,707	3,584	54,915	462,082	8.15	80	.040994	69,718	2,858	68,289	697,892	10.01
81	.069329	53,123	3,683	51,281	407,167	7.66	81	.045649	66,860	3,052	65,334	629,603	9.42
82	.075885	49,440	3,752	47,564	355,886	7.20	82	.050893	63,808	3,247	62,184	564,269	8.84
83	.082907	45,688	3,788	43,794	308,322	6.75	83	.056675	60,560	3,432	58,844	502,085	8.29
84	.090384	41,900	3,787	40,007	264,528	6.31	84	.062945	57,128	3,596	55,330	443,241	7.76
85	.108898	38,113	4,150	36,038	224,521	5.89	85	.073969	53,532	3,960	51,552	387,911	7.25
86	.118129	33,963	4,012	31,957	188,483	5.55	86	.081978	49,572	4,064	47,540	336,359	6.79
87	.128017	29,951	3,834	28,034	156,526	5.23	87	.090859	45,509	4,135	43,441	288,818	6.35
88	.138493	26,117	3,617	24,308	128,492	4.92	88	.100508	41,374	4,158	39,295	245,377	5.93
89	.149495	22,500	3,364	20,818	104,184	4.63	89	.110816	37,215	4,124	35,153	206,083	5.54
90	.161094	19,136	3,083	17,595	83,367	4.36	90	.121984	33,091	4,037	31,073	170,929	5.17
91	.173365	16,053	2,783	14,662	65,772	4.10	91	.134069	29,055	3,895	27,107	139,856	4.81
92	.186283	13,270	2,472	12,034	51,110	3.85	92	.147244	25,159	3,705	23,307	112,749	4.48
93	.199892	10,798	2,158	9,719	39,076	3.62	93	.161369	21,455	3,462	19,724	89,442	4.17
94	.214313	8,640	1,852	7,714	29,357	3.40	94	.176544	17,993	3,176	16,404	69,719	3.87
95	.229291	6,788	1,556	6,010	21,643	3.19	95	.192702	14,816	2,855	13,389	53,314	3.60
96	.245033	5,232	1,282	4,591	15,633	2.99	96	.210029	11,961	2,512	10,705	39,926	3.34
97	.261542	3,950	1,033	3,433	11,042	2.80	97	.228648	9,449	2,160	8,369	29,221	3.09
98	.278856	2,917	813	2,510	7,609	2.61	98	.248587	7,288	1,812	6,383	20,852	2.86
99	.296893	2,103	624	1,791	5,099	2.42	99	.269835	5,477	1,477	4,738	14,469	2.64
100	.328443	1,479	486	1,236	3,308	2.24	100	.294363	4,000	1,177	3,411	9,731	2.43
101	.348965	993	347	820	2,072	2.09	101	.318099	2,822	898	2,374	6,320	2.24
102	.370310	647	239	527	1,252	1.94	102	.343340	1,925	661	1,594	3,946	2.05
103	.392569	407	160	327	725	1.78	103	.370024	1,264	468	1,030	2,352	1.86
104	.415798	247	103	196	398	1.61	104	.398068	796	317	638	1,322	1.66
105	.439879	144	64	113	202	1.40	105	.427589	479	205	377	684	1.43
106	.561931	81	45	58	89	1.10	106	.554379	274	152	198	308	1.12
107	.684264	35	24	23	31	0.88	107	.677457	122	82	81	109	0.89
108	.807571	11	9	7	8	0.69	108	.793574	40	32	24	28	0.71
109	1.000000	2	2	1	1	0.50	109	1.000000	8	8	4	4	0.50

Calendar Year 2050

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
0	.002347	100,000	235	99,812	8,057,205	80.57	0	.002116	100,000	212	99,831	8,458,082	84.58
1	.000153	99,765	15	99,758	7,957,392	79.76	1	.000185	99,788	19	99,779	8,358,251	83.76
2	.000123	99,750	12	99,744	7,857,635	78.77	2	.000124	99,770	12	99,764	8,258,472	82.78
3	.000108	99,738	11	99,732	7,757,891	77.78	3	.000099	99,758	10	99,753	8,158,708	81.79
4	.000081	99,727	8	99,723	7,658,158	76.79	4	.000076	99,748	8	99,744	8,058,955	80.79
5	.000058	99,719	6	99,716	7,558,435	75.80	5	.000058	99,740	6	99,737	7,959,211	79.80
6	.000049	99,713	5	99,711	7,458,719	74.80	6	.000055	99,734	5	99,732	7,859,474	78.80
7	.000044	99,708	4	99,706	7,359,009	73.81	7	.000051	99,729	5	99,726	7,759,742	77.81
8	.000038	99,704	4	99,702	7,259,303	72.81	8	.000048	99,724	5	99,721	7,660,016	76.81
9	.000038	99,700	4	99,698	7,159,601	71.81	9	.000048	99,719	5	99,717	7,560,295	75.82
10	.000048	99,696	5	99,694	7,059,902	70.81	10	.000049	99,714	5	99,712	7,460,578	74.82
11	.000048	99,692	5	99,689	6,960,208	69.82	11	.000051	99,709	5	99,707	7,360,866	73.82
12	.000076	99,687	8	99,683	6,860,519	68.82	12	.000071	99,704	7	99,701	7,261,159	72.83
13	.000114	99,679	11	99,674	6,760,836	67.83	13	.000085	99,697	8	99,693	7,161,458	71.83
14	.000166	99,668	17	99,660	6,661,162	66.83	14	.000106	99,689	11	99,684	7,061,765	70.84
15	.000215	99,651	21	99,641	6,561,503	65.84	15	.000146	99,678	15	99,671	6,962,082	69.85
16	.000311	99,630	31	99,614	6,461,862	64.86	16	.000171	99,664	17	99,655	6,862,411	68.86
17	.000315	99,599	31	99,583	6,362,247	63.88	17	.000186	99,647	19	99,637	6,762,756	67.87
18	.000390	99,568	39	99,548	6,262,664	62.90	18	.000200	99,628	20	99,618	6,663,118	66.88
19	.000420	99,529	42	99,508	6,163,116	61.92	19	.000196	99,608	20	99,598	6,563,500	65.89
20	.000483	99,487	48	99,463	6,063,608	60.95	20	.000218	99,589	22	99,578	6,463,902	64.91
21	.000442	99,439	44	99,417	5,964,145	59.98	21	.000215	99,567	21	99,556	6,364,324	63.92
22	.000499	99,395	50	99,370	5,864,728	59.00	22	.000214	99,546	21	99,535	6,264,768	62.93
23	.000510	99,345	51	99,320	5,765,358	58.03	23	.000220	99,524	22	99,513	6,165,233	61.95
24	.000536	99,295	53	99,268	5,666,038	57.06	24	.000226	99,502	22	99,491	6,065,720	60.96
25	.000581	99,242	58	99,213	5,566,769	56.09	25	.000210	99,480	21	99,470	5,966,228	59.97
26	.000581	99,184	58	99,155	5,467,557	55.13	26	.000216	99,459	21	99,448	5,866,759	58.99
27	.000579	99,126	57	99,098	5,368,402	54.16	27	.000228	99,438	23	99,426	5,767,310	58.00
28	.000590	99,069	58	99,040	5,269,304	53.19	28	.000232	99,415	23	99,403	5,667,884	57.01
29	.000605	99,011	60	98,981	5,170,264	52.22	29	.000248	99,392	25	99,380	5,568,481	56.03
30	.000829	98,951	82	98,910	5,071,284	51.25	30	.000337	99,367	33	99,351	5,469,101	55.04
31	.000858	98,869	85	98,826	4,972,374	50.29	31	.000349	99,334	35	99,317	5,369,750	54.06
32	.000894	98,784	88	98,740	4,873,548	49.34	32	.000378	99,299	38	99,280	5,270,434	53.08
33	.000931	98,695	92	98,649	4,774,809	48.38	33	.000407	99,262	40	99,242	5,171,153	52.10
34	.000974	98,604	96	98,556	4,676,159	47.42	34	.000443	99,221	44	99,199	5,071,912	51.12
35	.001109	98,508	109	98,453	4,577,604	46.47	35	.000487	99,177	48	99,153	4,972,712	50.14
36	.001163	98,398	114	98,341	4,479,151	45.52	36	.000530	99,129	53	99,103	4,873,559	49.16
37	.001223	98,284	120	98,224	4,380,810	44.57	37	.000581	99,077	58	99,048	4,774,456	48.19
38	.001276	98,164	125	98,101	4,282,586	43.63	38	.000620	99,019	61	98,988	4,675,408	47.22
39	.001328	98,038	130	97,973	4,184,485	42.68	39	.000660	98,958	65	98,925	4,576,420	46.25
40	.001390	97,908	136	97,840	4,086,511	41.74	40	.000705	98,892	70	98,857	4,477,495	45.28
41	.001472	97,772	144	97,700	3,988,671	40.80	41	.000767	98,823	76	98,785	4,378,638	44.31
42	.001573	97,628	154	97,551	3,890,971	39.85	42	.000845	98,747	83	98,705	4,279,853	43.34
43	.001713	97,475	167	97,391	3,793,420	38.92	43	.000940	98,663	93	98,617	4,181,148	42.38
44	.001874	97,308	182	97,217	3,696,028	37.98	44	.001059	98,571	104	98,519	4,082,531	41.42
45	.001534	97,125	149	97,051	3,598,812	37.05	45	.001806	98,466	99	98,417	3,984,012	40.46
46	.001729	96,976	168	96,893	3,501,761	36.11	46	.001124	98,367	111	98,312	3,885,595	39.50
47	.001909	96,809	185	96,716	3,404,868	35.17	47	.001258	98,257	124	98,195	3,787,283	38.54
48	.002101	96,624	203	96,522	3,308,152	34.24	48	.001391	98,133	136	98,065	3,689,088	37.59
49	.002309	96,421	223	96,310	3,211,630	33.31	49	.001529	97,997	150	97,922	3,591,023	36.64
50	.002423	96,198	233	96,082	3,115,320	32.38	50	.001715	97,847	168	97,763	3,493,102	35.70
51	.002677	95,965	257	95,837	3,019,238	31.46	51	.001882	97,679	184	97,587	3,395,339	34.76
52	.002974	95,708	285	95,566	2,923,402	30.54	52	.002073	97,495	202	97,394	3,297,751	33.82
53	.003305	95,424	315	95,266	2,827,836	29.63	53	.002275	97,293	221	97,183	3,200,357	32.89
54	.003661	95,108	348	94,934	2,732,570	28.73	54	.002500	97,072	243	96,951	3,103,175	31.97

Calendar Year 2050 (Continued)

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
55	.003757	94,760	356	94,582	2,637,636	27.83	55	.002809	96,829	272	96,693	3,006,224	31.05
56	.004171	94,404	394	94,207	2,543,053	26.94	56	.003082	96,557	298	96,409	2,909,531	30.13
57	.004638	94,010	436	93,792	2,448,846	26.05	57	.003378	96,260	325	96,097	2,813,122	29.22
58	.005156	93,574	482	93,333	2,355,054	25.17	58	.003687	95,935	354	95,758	2,717,025	28.32
59	.005729	93,092	533	92,825	2,261,721	24.30	59	.004016	95,581	384	95,389	2,621,268	27.42
60	.006322	92,559	585	92,266	2,168,896	23.43	60	.004479	95,197	426	94,984	2,525,879	26.53
61	.006994	91,973	643	91,652	2,076,630	22.58	61	.004981	94,771	463	94,539	2,430,895	25.65
62	.007718	91,330	705	90,978	1,984,978	21.73	62	.005352	94,308	505	94,056	2,336,355	24.77
63	.008476	90,625	768	90,241	1,894,001	20.90	63	.005863	93,803	550	93,528	2,242,300	23.90
64	.009273	89,857	833	89,440	1,803,759	20.07	64	.006407	93,253	598	92,955	2,148,771	23.04
65	.010123	89,024	955	88,547	1,714,319	19.26	65	.007056	92,656	654	92,329	2,055,816	22.19
66	.011124	88,069	1,032	87,553	1,625,772	18.46	66	.007741	92,002	712	91,646	1,963,487	21.34
67	.012845	87,037	1,118	86,478	1,538,219	17.67	67	.008505	91,290	776	90,902	1,871,841	20.50
68	.014046	85,919	1,207	85,315	1,451,742	16.90	68	.009335	90,514	845	90,091	1,780,940	19.68
69	.015314	84,712	1,297	84,063	1,366,426	16.13	69	.010194	89,669	914	89,212	1,690,849	18.86
70	.018740	83,415	1,563	82,633	1,282,363	15.37	70	.011645	88,755	1,034	88,238	1,601,637	18.05
71	.020507	81,852	1,679	81,012	1,199,730	14.66	71	.012804	87,721	1,123	87,159	1,513,399	17.25
72	.022523	80,173	1,806	79,270	1,118,717	13.95	72	.014167	86,598	1,227	85,984	1,426,240	16.47
73	.024743	78,367	1,939	77,398	1,039,447	13.26	73	.015707	85,371	1,341	84,701	1,340,255	15.70
74	.027136	76,428	2,074	75,391	962,049	12.59	74	.017374	84,030	1,460	83,300	1,255,555	14.94
75	.030608	74,354	2,276	73,216	886,658	11.92	75	.019817	82,570	1,636	81,752	1,172,255	14.20
76	.034321	72,079	2,474	70,842	813,442	11.29	76	.022024	80,934	1,782	80,043	1,090,502	13.47
77	.037736	69,605	2,627	68,291	742,600	10.67	77	.024571	79,151	1,945	78,179	1,010,460	12.77
78	.041488	66,978	2,779	65,589	674,308	10.07	78	.027400	77,207	2,115	76,149	932,281	12.08
79	.045539	64,199	2,924	62,738	608,720	9.48	79	.030470	75,091	2,288	73,947	856,132	11.40
80	.055547	61,276	3,404	59,574	545,982	8.91	80	.036263	72,803	2,640	71,483	782,185	10.74
81	.060820	57,872	3,520	56,112	486,408	8.40	81	.040354	70,163	2,831	68,747	710,702	10.13
82	.066507	54,352	3,615	52,545	430,296	7.92	82	.044969	67,332	3,028	65,818	641,954	9.53
83	.072566	50,738	3,682	48,897	377,751	7.45	83	.050064	64,304	3,219	62,694	576,136	8.96
84	.079034	47,056	3,719	45,196	328,854	6.99	84	.055588	61,085	3,396	59,387	513,442	8.41
85	.095054	43,337	4,119	41,277	283,658	6.55	85	.065532	57,689	3,780	55,799	454,055	7.87
86	.103103	39,217	4,043	37,196	242,381	6.18	86	.072607	53,909	3,914	51,951	398,257	7.39
87	.111679	35,174	3,928	33,210	205,185	5.83	87	.080403	49,994	4,020	47,985	346,305	6.93
88	.120748	31,246	3,773	29,359	171,975	5.50	88	.088920	45,975	4,088	43,931	298,321	6.49
89	.130310	27,473	3,580	25,683	142,616	5.19	89	.098011	41,887	4,105	39,834	254,390	6.07
90	.140409	23,893	3,355	22,216	116,933	4.89	90	.107841	37,781	4,074	35,744	214,556	5.68
91	.151052	20,538	3,102	18,987	94,717	4.61	91	.118497	33,707	3,994	31,710	178,812	5.30
92	.162320	17,436	2,830	16,021	75,730	4.34	92	.130135	29,713	3,867	27,779	147,102	4.95
93	.174203	14,606	2,544	13,333	59,709	4.09	93	.142645	25,846	3,687	24,003	119,323	4.62
94	.186671	12,061	2,251	10,936	46,376	3.85	94	.156034	22,159	3,458	20,430	95,320	4.30
95	.199702	9,810	1,959	8,830	35,440	3.61	95	.170244	18,702	3,184	17,110	74,890	4.00
96	.213399	7,851	1,675	7,013	26,610	3.39	96	.185526	15,518	2,879	14,078	57,780	3.72
97	.227808	6,175	1,407	5,472	19,597	3.17	97	.201982	12,639	2,553	11,362	43,702	3.46
98	.242806	4,769	1,158	4,190	14,125	2.96	98	.219416	10,086	2,213	8,979	32,339	3.21
99	.258464	3,611	933	3,144	9,935	2.75	99	.237870	7,873	1,873	6,937	23,360	2.97
100	.289583	2,678	775	2,290	6,791	2.54	100	.259686	6,000	1,558	5,221	16,423	2.74
101	.307550	1,902	585	1,610	4,501	2.37	101	.280558	4,442	1,246	3,819	11,202	2.52
102	.326424	1,317	430	1,102	2,892	2.20	102	.302852	3,196	968	2,712	7,383	2.31
103	.346017	887	307	734	1,789	2.02	103	.326377	2,228	727	1,864	4,671	2.10
104	.365969	580	212	474	1,056	1.82	104	.350786	1,501	526	1,238	2,807	1.87
105	.387058	368	142	297	582	1.58	105	.376679	974	367	791	1,569	1.61
106	.494860	225	112	170	285	1.26	106	.488632	607	297	459	778	1.28
107	.602767	114	69	80	115	1.01	107	.593690	311	184	218	319	1.03
108	.710967	45	32	29	36	0.79	108	.699132	126	88	82	101	0.80
109	1.000000	13	13	7	7	0.50	109	1.000000	38	38	19	19	0.50

Appendix B Cohort Life Tables for Canada less Québec (18th CPP Report)

Born in 1970

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
0	.020052	100,000	2,005	98,396	7,772,796	77.73	0	.015455	100,000	1,546	98,764	8,274,565	82.75
1	.001240	97,995	122	97,934	7,674,400	78.31	1	.001138	98,454	112	98,398	8,175,802	83.04
2	.000875	97,873	86	97,830	7,576,466	77.41	2	.000719	98,342	71	98,307	8,077,403	82.14
3	.000710	97,788	69	97,753	7,478,635	76.48	3	.000523	98,272	51	98,246	7,979,096	81.19
4	.000563	97,718	55	97,691	7,380,882	75.53	4	.000424	98,220	42	98,199	7,880,850	80.24
5	.000435	97,663	42	97,642	7,283,192	74.57	5	.000337	98,179	33	98,162	7,782,651	79.27
6	.000341	97,621	33	97,604	7,185,550	73.61	6	.000276	98,146	27	98,132	7,684,489	78.30
7	.000264	97,588	26	97,575	7,087,946	72.63	7	.000238	98,118	23	98,107	7,586,357	77.32
8	.000210	97,562	20	97,552	6,990,371	71.65	8	.000203	98,095	20	98,085	7,488,250	76.34
9	.000197	97,541	19	97,532	6,892,819	70.67	9	.000183	98,075	18	98,066	7,390,165	75.35
10	.000219	97,522	21	97,511	6,795,288	69.68	10	.000181	98,057	18	98,048	7,292,098	74.37
11	.000257	97,501	25	97,488	6,697,776	68.69	11	.000184	98,039	18	98,030	7,194,050	73.38
12	.000325	97,476	32	97,460	6,600,288	67.71	12	.000203	98,021	20	98,012	7,096,020	72.39
13	.000438	97,444	43	97,423	6,502,828	66.73	13	.000231	98,002	23	97,990	6,998,008	71.41
14	.000596	97,401	58	97,372	6,405,406	65.76	14	.000285	97,979	28	97,965	6,900,018	70.42
15	.000734	97,343	71	97,308	6,308,034	64.80	15	.000327	97,951	32	97,935	6,802,053	69.44
16	.000856	97,272	83	97,230	6,210,726	63.85	16	.000382	97,919	37	97,900	6,704,118	68.47
17	.000973	97,189	95	97,141	6,113,496	62.90	17	.000402	97,882	39	97,862	6,606,218	67.49
18	.001045	97,094	101	97,043	6,016,355	61.96	18	.000407	97,842	40	97,822	6,508,356	66.52
19	.001093	96,993	106	96,940	5,919,311	61.03	19	.000397	97,802	39	97,783	6,410,533	65.55
20	.001090	96,887	106	96,834	5,822,372	60.09	20	.000371	97,764	36	97,745	6,312,750	64.57
21	.001101	96,781	107	96,728	5,725,538	59.16	21	.000357	97,727	35	97,710	6,215,005	63.60
22	.000996	96,674	96	96,626	5,628,810	58.22	22	.000378	97,693	37	97,674	6,117,295	62.62
23	.001064	96,578	103	96,527	5,532,184	57.28	23	.000400	97,656	39	97,636	6,019,621	61.64
24	.001075	96,475	104	96,424	5,435,657	56.34	24	.000391	97,617	38	97,597	5,921,985	60.67
25	.001031	96,372	99	96,322	5,339,233	55.40	25	.000366	97,578	36	97,561	5,824,387	59.69
26	.000940	96,272	90	96,227	5,242,911	54.46	26	.000327	97,543	32	97,527	5,726,827	58.71
27	.000921	96,182	89	96,138	5,146,684	53.51	27	.000341	97,511	33	97,494	5,629,300	57.73
28	.000922	96,093	89	96,049	5,050,546	52.56	28	.000342	97,478	33	97,461	5,531,806	56.75
29	.000931	96,005	89	95,960	4,954,497	51.61	29	.000353	97,444	34	97,427	5,434,345	55.77
30	.001140	95,915	109	95,861	4,858,537	50.65	30	.000448	97,410	44	97,388	5,336,918	54.79
31	.001174	95,806	112	95,750	4,762,677	49.71	31	.000461	97,366	45	97,344	5,239,530	53.81
32	.001217	95,694	116	95,635	4,666,927	48.77	32	.000495	97,321	48	97,297	5,142,186	52.84
33	.001260	95,577	120	95,517	4,571,291	47.83	33	.000528	97,273	51	97,248	5,044,889	51.86
34	.001311	95,457	125	95,394	4,475,774	46.89	34	.000570	97,222	55	97,194	4,947,641	50.89
35	.001439	95,331	137	95,263	4,380,380	45.95	35	.000618	97,166	60	97,136	4,850,447	49.92
36	.001507	95,194	143	95,123	4,285,118	45.01	36	.000668	97,106	65	97,074	4,753,311	48.95
37	.001581	95,051	150	94,976	4,189,995	44.08	37	.000727	97,041	71	97,006	4,656,237	47.98
38	.001644	94,901	156	94,823	4,095,019	43.15	38	.000771	96,971	75	96,934	4,559,231	47.02
39	.001706	94,745	162	94,664	4,000,197	42.22	39	.000815	96,896	79	96,857	4,462,297	46.05
40	.001795	94,583	170	94,498	3,905,533	41.29	40	.000871	96,817	84	96,775	4,365,440	45.09
41	.001891	94,413	178	94,324	3,811,035	40.37	41	.000940	96,733	91	96,687	4,268,665	44.13
42	.002009	94,235	189	94,140	3,716,711	39.44	42	.001028	96,642	99	96,592	4,171,978	43.17
43	.002177	94,045	205	93,943	3,622,571	38.52	43	.001135	96,543	110	96,488	4,075,386	42.21
44	.002367	93,841	222	93,730	3,528,628	37.60	44	.001272	96,433	123	96,372	3,978,898	41.26
45	.001938	93,619	181	93,528	3,434,898	36.69	45	.001199	96,310	115	96,253	3,882,526	40.31
46	.002130	93,437	199	93,338	3,341,370	35.76	46	.001330	96,195	128	96,131	3,786,273	39.36
47	.002334	93,238	218	93,129	3,248,032	34.84	47	.001479	96,067	142	95,996	3,690,142	38.41
48	.002550	93,021	237	92,902	3,154,903	33.92	48	.001625	95,925	156	95,847	3,594,146	37.47
49	.002785	92,783	258	92,654	3,062,001	33.00	49	.001776	95,769	170	95,684	3,498,299	36.53
50	.002906	92,525	269	92,391	2,969,347	32.09	50	.001990	95,599	190	95,504	3,402,615	35.59
51	.003191	92,256	294	92,109	2,876,956	31.18	51	.002173	95,409	207	95,305	3,307,111	34.66
52	.003524	91,962	324	91,800	2,784,847	30.28	52	.002383	95,201	227	95,088	3,211,806	33.74
53	.003891	91,638	357	91,459	2,693,048	29.39	53	.002603	94,975	247	94,851	3,116,718	32.82
54	.004285	91,281	391	91,086	2,601,588	28.50	54	.002846	94,727	270	94,593	3,021,867	31.90

Born in 1970 (Continued)

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
55	.004367	90,890	397	90,692	2,510,503	27.62	55	.003186	94,458	301	94,307	2,927,274	30.99
56	.004819	90,493	436	90,275	2,419,811	26.74	56	.003478	94,157	327	93,993	2,832,967	30.09
57	.005326	90,057	480	89,817	2,329,536	25.87	57	.003791	93,829	356	93,652	2,738,974	29.19
58	.005886	89,577	527	89,314	2,239,719	25.00	58	.004116	93,474	385	93,281	2,645,322	28.30
59	.006501	89,050	579	88,761	2,150,405	24.15	59	.004460	93,089	415	92,881	2,552,041	27.42
60	.007130	88,471	631	88,156	2,061,644	23.30	60	.004952	92,674	459	92,444	2,459,160	26.54
61	.007838	87,840	689	87,496	1,973,489	22.47	61	.005370	92,215	495	91,967	2,366,715	25.67
62	.008596	87,152	749	86,777	1,885,992	21.64	62	.005859	91,720	537	91,451	2,274,748	24.80
63	.009384	86,403	811	85,997	1,799,215	20.82	63	.006387	91,182	582	90,891	2,183,297	23.94
64	.010206	85,592	874	85,155	1,713,218	20.02	64	.006945	90,600	629	90,285	2,092,406	23.10
65	.011725	84,718	993	84,222	1,628,062	19.22	65	.007611	89,971	685	89,628	2,002,121	22.25
66	.012748	83,725	1,067	83,191	1,543,841	18.44	66	.008306	89,286	742	88,915	1,912,493	21.42
67	.013885	82,658	1,148	82,084	1,460,649	17.67	67	.009079	88,544	804	88,142	1,823,578	20.60
68	.015106	81,510	1,231	80,894	1,378,565	16.91	68	.009909	87,740	869	87,306	1,735,435	19.78
69	.016384	80,279	1,315	79,621	1,297,671	16.16	69	.010761	86,871	935	86,404	1,648,130	18.97
70	.019949	78,964	1,575	78,176	1,218,050	15.43	70	.012244	85,936	1,052	85,410	1,561,726	18.17
71	.021691	77,388	1,679	76,549	1,139,874	14.73	71	.013397	84,884	1,137	84,315	1,476,316	17.39
72	.023673	75,710	1,792	74,814	1,063,325	14.04	72	.014750	83,747	1,235	83,129	1,392,001	16.62
73	.025844	73,917	1,910	72,962	988,511	13.37	73	.016272	82,512	1,343	81,840	1,308,871	15.86
74	.028168	72,007	2,028	70,993	915,549	12.71	74	.017908	81,169	1,454	80,442	1,227,031	15.12
75	.031566	69,979	2,209	68,874	844,556	12.07	75	.020324	79,715	1,620	78,905	1,146,589	14.38
76	.035090	67,770	2,378	66,581	775,682	11.45	76	.022471	78,095	1,755	77,218	1,067,684	13.67
77	.038356	65,392	2,508	64,138	709,101	10.84	77	.024940	76,340	1,904	75,388	990,466	12.97
78	.041937	62,884	2,637	61,565	644,963	10.26	78	.027674	74,436	2,060	73,406	915,078	12.29
79	.045783	60,246	2,758	59,867	583,398	9.68	79	.030621	72,376	2,216	71,268	841,672	11.63
80	.055547	57,488	3,193	55,892	524,531	9.12	80	.036263	70,160	2,544	68,888	770,403	10.98
81	.060496	54,295	3,285	52,653	468,640	8.63	81	.040154	67,616	2,715	66,258	701,515	10.38
82	.065807	51,010	3,357	49,332	415,987	8.15	82	.044529	64,901	2,890	63,456	635,257	9.79
83	.071460	47,653	3,405	45,951	366,655	7.69	83	.049333	62,011	3,059	60,481	571,801	9.22
84	.077426	44,248	3,426	42,535	320,704	7.25	84	.054505	58,952	3,213	57,345	511,320	8.67
85	.092598	40,822	3,780	38,932	278,169	6.81	85	.064056	55,739	3,570	53,953	453,975	8.14
86	.099879	37,042	3,700	35,192	239,237	6.46	86	.070608	52,168	3,683	50,326	400,021	7.67
87	.107600	33,342	3,588	31,549	204,045	6.12	87	.077828	48,485	3,773	46,598	349,695	7.21
88	.115723	29,755	3,443	28,033	172,496	5.80	88	.085645	44,711	3,829	42,797	303,097	6.78
89	.124230	26,311	3,269	24,677	144,463	5.49	89	.093979	40,882	3,842	38,961	260,300	6.37
90	.133134	23,043	3,068	21,509	119,786	5.20	90	.102932	37,040	3,813	35,134	221,339	5.98
91	.142476	19,975	2,846	18,552	98,277	4.92	91	.112579	33,227	3,741	31,357	186,206	5.60
92	.152289	17,129	2,609	15,825	79,725	4.65	92	.123031	29,487	3,628	27,673	154,849	5.25
93	.162536	14,520	2,360	13,340	63,900	4.40	93	.134196	25,859	3,470	24,124	127,176	4.92
94	.173185	12,160	2,106	11,107	50,560	4.16	94	.146005	22,389	3,269	20,754	103,052	4.60
95	.184267	10,054	1,853	9,128	39,452	3.92	95	.158546	19,120	3,031	17,604	82,298	4.30
96	.195814	8,202	1,606	7,399	30,324	3.70	96	.171900	16,088	2,766	14,706	64,694	4.02
97	.207849	6,596	1,371	5,910	22,926	3.48	97	.185173	13,323	2,480	12,083	49,988	3.75
98	.220342	5,225	1,151	4,649	17,015	3.26	98	.201266	10,843	2,182	9,751	37,905	3.50
99	.233263	4,074	950	3,598	12,366	3.04	99	.217118	8,660	1,880	7,720	28,154	3.25
100	.262477	3,123	820	2,713	8,768	2.81	100	.235327	6,780	1,596	5,982	20,434	3.01
101	.277370	2,304	639	1,984	6,054	2.63	101	.252991	5,184	1,312	4,529	14,451	2.79
102	.292819	1,665	487	1,421	4,070	2.45	102	.271667	3,873	1,052	3,347	9,923	2.56
103	.308802	1,177	364	995	2,649	2.25	103	.291266	2,821	822	2,410	6,576	2.33
104	.325273	814	265	681	1,654	2.03	104	.311706	1,999	623	1,688	4,166	2.08
105	.342272	549	188	455	973	1.77	105	.333071	1,376	458	1,147	2,479	1.80
106	.435217	361	157	283	518	1.43	106	.429786	918	394	720	1,332	1.45
107	.527327	204	108	150	235	1.15	107	.519752	523	272	387	611	1.17
108	.618651	96	60	67	85	0.88	108	.609015	251	153	175	224	0.89
109	1.000000	37	37	18	18	0.50	109	1.000000	98	98	49	49	0.50

Born in 1980

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
0	.011774	100,000	1,177	99,058	7,936,000	79.36	0	.009033	100,000	903	99,277	8,400,723	84.01
1	.000811	98,823	80	98,783	7,836,942	79.30	1	.000668	99,097	66	99,064	8,301,446	83.77
2	.000603	98,742	60	98,713	7,738,159	78.37	2	.000453	99,030	45	99,008	8,202,382	82.83
3	.000438	98,683	43	98,661	7,639,447	77.41	3	.000349	98,986	35	98,968	8,103,374	81.86
4	.000400	98,640	39	98,620	7,540,785	76.45	4	.000268	98,951	27	98,938	8,004,406	80.89
5	.000320	98,600	32	98,584	7,442,165	75.48	5	.000211	98,925	21	98,914	7,905,468	79.91
6	.000235	98,569	23	98,557	7,343,581	74.50	6	.000159	98,904	16	98,896	7,806,554	78.93
7	.000155	98,546	15	98,538	7,245,024	73.52	7	.000136	98,888	13	98,881	7,707,658	77.94
8	.000131	98,530	13	98,524	7,146,486	72.53	8	.000115	98,874	11	98,869	7,608,777	76.95
9	.000128	98,517	13	98,511	7,047,962	71.54	9	.000113	98,863	11	98,858	7,509,908	75.96
10	.000141	98,505	14	98,498	6,949,451	70.55	10	.000119	98,852	12	98,846	7,411,051	74.97
11	.000136	98,491	13	98,484	6,850,953	69.56	11	.000120	98,840	12	98,834	7,312,205	73.98
12	.000204	98,478	20	98,467	6,752,469	68.57	12	.000135	98,828	13	98,822	7,213,371	72.99
13	.000278	98,457	27	98,444	6,654,001	67.58	13	.000174	98,815	17	98,806	7,114,549	72.00
14	.000441	98,430	43	98,408	6,555,558	66.60	14	.000235	98,798	23	98,786	7,015,743	71.01
15	.000544	98,387	54	98,360	6,457,149	65.63	15	.000253	98,775	25	98,762	6,916,956	70.03
16	.000640	98,333	63	98,302	6,358,789	64.67	16	.000275	98,750	27	98,736	6,818,194	69.05
17	.000620	98,270	61	98,240	6,260,488	63.71	17	.000293	98,722	29	98,708	6,719,458	68.06
18	.000734	98,209	72	98,173	6,162,248	62.75	18	.000303	98,693	30	98,679	6,620,750	67.08
19	.000765	98,137	75	98,100	6,064,075	61.79	19	.000291	98,664	29	98,649	6,522,072	66.10
20	.000806	98,062	79	98,023	5,965,975	60.84	20	.000317	98,635	31	98,619	6,423,423	65.12
21	.000711	97,983	70	97,948	5,867,953	59.89	21	.000307	98,604	30	98,588	6,324,803	64.14
22	.000790	97,913	77	97,875	5,770,004	58.93	22	.000300	98,573	30	98,559	6,226,215	63.16
23	.000788	97,836	77	97,797	5,672,130	57.98	23	.000304	98,544	30	98,529	6,127,656	62.18
24	.000812	97,759	79	97,719	5,574,332	57.02	24	.000308	98,514	30	98,499	6,029,128	61.20
25	.000813	97,680	79	97,640	5,476,613	56.07	25	.000283	98,484	28	98,470	5,930,629	60.22
26	.000803	97,600	78	97,561	5,378,973	55.11	26	.000287	98,456	28	98,442	5,832,159	59.24
27	.000790	97,522	77	97,483	5,281,412	54.16	27	.000300	98,427	29	98,413	5,733,718	58.25
28	.000795	97,445	77	97,406	5,183,929	53.20	28	.000302	98,398	30	98,383	5,635,305	57.27
29	.000806	97,367	79	97,328	5,086,523	52.24	29	.000313	98,368	31	98,353	5,536,922	56.29
30	.001077	97,289	105	97,236	4,989,195	51.28	30	.000414	98,338	41	98,317	5,438,569	55.31
31	.001108	97,184	108	97,130	4,891,959	50.34	31	.000427	98,297	42	98,276	5,340,252	54.33
32	.001145	97,076	112	97,021	4,794,828	49.39	32	.000459	98,255	45	98,232	5,241,976	53.35
33	.001188	96,965	115	96,907	4,697,808	48.45	33	.000491	98,210	48	98,186	5,143,744	52.38
34	.001236	96,850	120	96,790	4,600,901	47.51	34	.000531	98,162	52	98,136	5,045,558	51.40
35	.001385	96,730	134	96,663	4,504,111	46.56	35	.000581	98,109	57	98,081	4,947,422	50.43
36	.001446	96,596	140	96,526	4,407,448	45.63	36	.000629	98,052	62	98,022	4,849,341	49.46
37	.001513	96,456	146	96,383	4,310,922	44.69	37	.000685	97,991	67	97,957	4,751,320	48.49
38	.001569	96,310	151	96,235	4,214,539	43.76	38	.000728	97,924	71	97,888	4,653,362	47.52
39	.001624	96,159	156	96,081	4,118,304	42.83	39	.000770	97,852	75	97,815	4,555,474	46.55
40	.001698	96,003	163	95,921	4,022,223	41.90	40	.000813	97,777	79	97,737	4,457,660	45.59
41	.001786	95,840	171	95,754	3,926,302	40.97	41	.000879	97,698	86	97,655	4,359,922	44.63
42	.001895	95,669	181	95,578	3,830,547	40.04	42	.000964	97,612	94	97,565	4,262,268	43.67
43	.002051	95,487	196	95,390	3,734,969	39.11	43	.001067	97,518	104	97,466	4,164,703	42.71
44	.002227	95,292	212	95,186	3,639,580	38.19	44	.001199	97,414	117	97,355	4,067,237	41.75
45	.001808	95,079	172	94,994	3,544,394	37.28	45	.001124	97,297	109	97,242	3,969,882	40.80
46	.002000	94,908	190	94,813	3,449,401	36.34	46	.001251	97,187	122	97,127	3,872,640	39.85
47	.002194	94,718	208	94,614	3,354,588	35.42	47	.001395	97,066	135	96,998	3,775,514	38.90
48	.002399	94,510	227	94,397	3,259,974	34.49	48	.001535	96,930	149	96,856	3,678,516	37.95
49	.002622	94,283	247	94,160	3,165,577	33.58	49	.001681	96,781	163	96,700	3,581,660	37.01
50	.002738	94,036	257	93,907	3,071,418	32.66	50	.001890	96,619	183	96,527	3,484,960	36.07
51	.003007	93,779	282	93,638	2,977,510	31.75	51	.002064	96,436	199	96,337	3,388,432	35.14
52	.003321	93,497	310	93,341	2,883,873	30.84	52	.002264	96,237	218	96,128	3,292,096	34.21
53	.003667	93,186	342	92,015	2,790,532	29.95	53	.002473	96,019	237	95,901	3,195,967	33.28
54	.004038	92,844	375	92,657	2,697,516	29.05	54	.002704	95,782	259	95,652	3,100,067	32.37

Born in 1980 (Continued)

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
55	.004113	92,469	380	92,279	2,604,860	28.17	55	.003036	95,523	290	95,378	3,004,415	31.45
56	.004538	92,089	418	91,880	2,512,580	27.28	56	.003314	95,233	316	95,075	2,909,037	30.55
57	.005016	91,671	460	91,441	2,420,700	26.41	57	.003612	94,917	343	94,746	2,813,962	29.65
58	.005542	91,211	505	90,959	2,329,259	25.54	58	.003921	94,574	371	94,389	2,719,216	28.75
59	.006121	90,706	555	90,428	2,238,301	24.68	59	.004247	94,204	400	94,004	2,624,827	27.86
60	.006709	90,151	605	89,848	2,147,872	23.83	60	.004713	93,804	442	93,582	2,530,823	26.98
61	.007376	89,546	660	89,216	2,058,024	22.98	61	.005110	93,361	477	93,123	2,437,241	26.11
62	.008039	88,885	719	88,526	1,968,808	22.15	62	.005575	92,884	518	92,625	2,344,118	25.24
63	.008830	88,166	779	87,777	1,880,283	21.33	63	.006079	92,366	561	92,086	2,251,493	24.38
64	.009605	87,388	839	86,968	1,792,506	20.51	64	.006611	91,805	607	91,502	2,159,407	23.52
65	.011023	86,548	954	86,071	1,705,537	19.71	65	.007247	91,198	661	90,868	2,067,905	22.67
66	.011985	85,594	1,026	85,082	1,619,466	18.92	66	.007910	90,537	716	90,179	1,977,038	21.84
67	.013053	84,569	1,104	84,017	1,534,384	18.14	67	.008646	89,821	777	89,433	1,886,859	21.01
68	.014201	83,465	1,185	82,872	1,450,368	17.38	68	.009437	89,044	840	88,624	1,797,426	20.19
69	.015399	82,279	1,267	81,646	1,367,496	16.62	69	.010247	88,204	904	87,752	1,708,802	19.37
70	.018740	81,012	1,518	80,253	1,285,850	15.87	70	.011645	87,300	1,017	86,792	1,621,050	18.57
71	.020375	79,494	1,620	78,684	1,205,596	15.17	71	.012739	86,284	1,099	85,734	1,534,258	17.78
72	.022238	77,875	1,732	77,009	1,126,912	14.47	72	.014025	85,184	1,195	84,587	1,448,524	17.00
73	.024279	76,143	1,849	75,218	1,049,903	13.79	73	.015471	83,990	1,299	83,340	1,363,936	16.24
74	.026465	74,294	1,966	73,311	974,685	13.12	74	.017025	82,690	1,408	81,986	1,280,596	15.49
75	.029677	72,328	2,146	71,255	901,374	12.46	75	.019322	81,283	1,571	80,497	1,198,610	14.75
76	.033161	70,182	2,327	69,018	830,119	11.83	76	.021363	79,712	1,703	78,861	1,118,113	14.03
77	.036253	67,854	2,460	66,624	761,101	11.22	77	.023710	78,009	1,850	77,084	1,039,252	13.32
78	.039646	65,394	2,593	64,098	694,477	10.62	78	.026311	76,159	2,004	75,158	962,168	12.63
79	.043290	62,802	2,719	61,442	630,379	10.04	79	.029115	74,156	2,159	73,076	887,010	11.96
80	.052461	60,083	3,152	58,507	568,936	9.47	80	.034474	71,997	2,482	70,756	813,934	11.31
81	.057147	56,931	3,253	55,304	510,429	8.97	81	.038176	69,515	2,654	68,188	743,179	10.69
82	.062173	53,678	3,337	52,009	455,125	8.48	82	.042337	66,861	2,831	65,445	674,991	10.10
83	.067524	50,340	3,399	48,641	403,116	8.01	83	.046906	64,030	3,003	62,528	609,545	9.52
84	.073171	46,941	3,435	45,224	354,476	7.55	84	.051825	61,027	3,163	59,445	547,017	8.96
85	.087541	43,506	3,809	41,602	309,252	7.11	85	.060841	57,864	3,521	56,104	487,572	8.43
86	.094425	39,698	3,748	37,824	267,650	6.74	86	.067065	54,343	3,645	52,521	431,468	7.94
87	.101724	35,949	3,657	34,121	229,826	6.39	87	.073923	50,699	3,748	48,825	378,947	7.47
88	.109404	32,292	3,533	30,526	195,705	6.06	88	.081348	46,951	3,819	45,041	330,122	7.03
89	.117447	28,759	3,378	27,071	165,179	5.74	89	.089264	43,132	3,850	41,207	285,080	6.61
90	.125865	25,382	3,195	23,784	138,109	5.44	90	.097769	39,282	3,841	37,361	243,874	6.21
91	.134698	22,187	2,989	20,693	114,324	5.15	91	.106933	35,441	3,790	33,546	206,512	5.83
92	.143976	19,199	2,764	17,816	93,632	4.88	92	.116861	31,651	3,699	29,802	172,966	5.46
93	.153664	16,434	2,525	15,172	75,815	4.61	93	.127468	27,952	3,563	26,171	143,164	5.12
94	.163732	13,909	2,277	12,770	60,643	4.36	94	.138686	24,389	3,382	22,698	116,993	4.80
95	.174211	11,632	2,026	10,619	47,873	4.12	95	.150599	21,007	3,164	19,425	94,295	4.49
96	.185128	9,605	1,778	8,716	37,254	3.88	96	.163286	17,843	2,914	16,387	74,870	4.20
97	.196508	7,827	1,538	7,058	28,538	3.65	97	.176846	14,930	2,640	13,610	58,483	3.92
98	.208321	6,289	1,310	5,634	21,480	3.42	98	.191185	12,289	2,350	11,115	44,874	3.65
99	.220538	4,979	1,098	4,430	15,846	3.18	99	.206246	9,940	2,050	8,915	33,759	3.40
100	.249411	3,881	968	3,397	11,416	2.94	100	.223691	7,890	1,765	7,007	24,844	3.15
101	.263565	2,913	768	2,529	8,019	2.75	101	.240483	6,125	1,473	5,388	17,837	2.91
102	.278248	2,145	597	1,847	5,490	2.56	102	.258236	4,652	1,201	4,051	12,448	2.68
103	.293438	1,548	454	1,321	3,644	2.35	103	.276868	3,451	955	2,973	8,397	2.43
104	.309093	1,094	338	925	2,323	2.12	104	.296298	2,495	739	2,126	5,424	2.17
105	.325250	756	246	633	1,398	1.85	105	.316608	1,756	556	1,478	3,298	1.88
106	.413577	510	211	405	765	1.50	106	.408545	1,200	490	955	1,820	1.52
107	.501114	299	150	224	360	1.20	107	.493975	710	351	534	865	1.22
108	.587904	149	88	105	136	0.91	108	.578742	359	208	255	331	0.92
109	1.000000	61	61	31	31	0.50	109	1.000000	151	151	76	76	0.50

Born in 1990

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
0	.007494	100,000	749	99,400	8,053,301	80.53	0	.006110	100,000	611	99,511	8,486,055	84.86
1	.000522	99,251	52	99,225	7,953,900	80.14	1	.000463	99,389	46	99,366	8,386,544	84.38
2	.000347	99,199	34	99,182	7,854,675	79.18	2	.000288	99,343	29	99,329	8,287,178	83.42
3	.000347	99,164	34	99,147	7,755,494	78.21	3	.000235	99,314	23	99,303	8,187,849	82.44
4	.000232	99,130	23	99,118	7,656,347	77.24	4	.000181	99,291	18	99,282	8,088,547	81.46
5	.000188	99,107	19	99,098	7,557,228	76.25	5	.000105	99,273	10	99,268	7,989,265	80.48
6	.000123	99,088	12	99,082	7,458,130	75.27	6	.000110	99,263	11	99,257	7,889,997	79.49
7	.000102	99,076	10	99,071	7,359,048	74.28	7	.000099	99,252	10	99,247	7,790,740	78.49
8	.000082	99,066	8	99,062	7,259,977	73.28	8	.000088	99,242	9	99,238	7,691,493	77.50
9	.000079	99,058	8	99,054	7,160,915	72.29	9	.000086	99,233	9	99,229	7,592,255	76.51
10	.000095	99,050	9	99,046	7,061,861	71.30	10	.000078	99,225	8	99,221	7,493,026	75.52
11	.000092	99,041	9	99,036	6,962,815	70.30	11	.000080	99,217	8	99,213	7,393,806	74.52
12	.000138	99,032	14	99,025	6,863,779	69.31	12	.000108	99,209	11	99,204	7,294,593	73.53
13	.000204	99,018	20	99,008	6,764,754	68.32	13	.000128	99,198	13	99,192	7,195,389	72.54
14	.000284	98,998	28	98,984	6,665,746	67.33	14	.000155	99,186	15	99,178	7,096,197	71.54
15	.000345	98,970	34	98,953	6,566,762	66.35	15	.000209	99,170	21	99,160	6,997,019	70.56
16	.000480	98,936	48	98,912	6,467,809	65.37	16	.000236	99,150	23	99,138	6,897,859	69.57
17	.000472	98,888	47	98,865	6,368,897	64.40	17	.000254	99,126	25	99,114	6,798,721	68.59
18	.000564	98,842	56	98,814	6,270,032	63.44	18	.000264	99,101	26	99,088	6,699,608	67.60
19	.000595	98,786	59	98,756	6,171,218	62.47	19	.000255	99,075	25	99,062	6,600,520	66.62
20	.000655	98,727	65	98,695	6,072,462	61.51	20	.000279	99,050	28	99,036	6,501,457	65.64
21	.000586	98,662	58	98,633	5,973,767	60.55	21	.000272	99,022	27	99,009	6,402,422	64.66
22	.000655	98,605	65	98,572	5,875,134	59.58	22	.000267	98,995	26	98,982	6,303,413	63.67
23	.000660	98,540	65	98,507	5,776,562	58.62	23	.000272	98,969	27	98,955	6,204,431	62.69
24	.000686	98,475	68	98,441	5,678,054	57.66	24	.000277	98,942	27	98,928	6,105,476	61.71
25	.000730	98,407	72	98,371	5,579,613	56.70	25	.000256	98,914	25	98,902	6,006,548	60.72
26	.000724	98,335	71	98,300	5,481,242	55.74	26	.000261	98,889	26	98,876	5,907,646	59.74
27	.000716	98,264	70	98,229	5,382,942	54.78	27	.000274	98,863	27	98,850	5,808,770	58.76
28	.000723	98,194	71	98,158	5,284,713	53.82	28	.000277	98,836	27	98,822	5,709,920	57.77
29	.000737	98,123	72	98,087	5,186,554	52.86	29	.000290	98,809	29	98,794	5,611,098	56.79
30	.001010	98,051	99	98,001	5,088,468	51.90	30	.000391	98,780	39	98,761	5,512,303	55.80
31	.001039	97,952	102	97,901	4,990,467	50.95	31	.000403	98,742	40	98,722	5,413,543	54.83
32	.001076	97,850	105	97,797	4,892,566	50.00	32	.000434	98,702	43	98,680	5,314,821	53.85
33	.001112	97,745	109	97,690	4,794,769	49.05	33	.000465	98,659	46	98,636	5,216,141	52.87
34	.001156	97,636	113	97,579	4,697,079	48.11	34	.000504	98,613	50	98,588	5,117,505	51.89
35	.001304	97,523	127	97,459	4,599,500	47.16	35	.000552	98,563	54	98,536	5,018,916	50.92
36	.001359	97,396	132	97,330	4,502,040	46.22	36	.000598	98,509	59	98,480	4,920,380	49.95
37	.001420	97,263	138	97,194	4,404,711	45.29	37	.000651	98,450	64	98,418	4,821,901	48.98
38	.001472	97,125	143	97,054	4,307,516	44.35	38	.000692	98,386	68	98,352	4,723,483	48.01
39	.001523	96,982	148	96,908	4,210,462	43.41	39	.000733	98,318	72	98,282	4,625,131	47.04
40	.001587	96,835	154	96,758	4,113,554	42.48	40	.000776	98,246	76	98,208	4,526,849	46.08
41	.001669	96,681	161	96,600	4,016,796	41.55	41	.000840	98,170	82	98,128	4,428,641	45.11
42	.001771	96,520	171	96,434	3,920,196	40.62	42	.000921	98,087	90	98,042	4,330,513	44.15
43	.001917	96,349	185	96,256	3,823,762	39.69	43	.001019	97,997	100	97,947	4,232,471	43.19
44	.002082	96,164	200	96,064	3,727,506	38.76	44	.001144	97,897	112	97,841	4,134,524	42.23
45	.001693	95,964	162	95,882	3,631,442	37.84	45	.001077	97,785	105	97,732	4,036,682	41.28
46	.001882	95,801	180	95,711	3,535,559	36.91	46	.001198	97,680	117	97,621	3,938,951	40.33
47	.002065	95,621	197	95,522	3,439,848	35.97	47	.001335	97,563	130	97,498	3,841,330	39.37
48	.002259	95,423	216	95,316	3,344,326	35.05	48	.001468	97,432	143	97,361	3,743,832	38.42
49	.002468	95,208	235	95,090	3,249,010	34.13	49	.001607	97,289	156	97,211	3,646,471	37.48
50	.002575	94,973	245	94,851	3,153,920	33.21	50	.001800	97,133	175	97,046	3,549,260	36.54
51	.002828	94,728	268	94,594	3,059,069	32.29	51	.001966	96,958	191	96,863	3,452,214	35.61
52	.003123	94,461	295	94,313	2,964,474	31.38	52	.002156	96,768	209	96,663	3,355,352	34.67
53	.003449	94,166	325	94,003	2,870,161	30.48	53	.002355	96,559	227	96,445	3,258,688	33.75
54	.003798	93,841	356	93,663	2,776,158	29.58	54	.002575	96,332	248	96,208	3,162,243	32.83

Born in 1990 (Continued)

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
55	.003872	93,484	362	93,303	2,602,496	28.69	55	.002082	96,084	277	95,945	3,066,035	31.91
56	.004273	93,122	398	92,924	2,589,192	27.80	56	.003146	95,807	301	95,656	2,970,090	31.00
57	.004722	92,725	438	92,506	2,496,269	26.92	57	.003429	95,505	327	95,342	2,874,434	30.10
58	.005218	92,287	482	92,046	2,403,763	26.05	58	.003723	95,178	354	95,001	2,779,092	29.20
59	.005764	91,805	529	91,541	2,311,717	25.18	59	.004034	94,824	383	94,632	2,684,092	28.31
60	.006322	91,276	577	90,987	2,220,176	24.32	60	.004479	94,441	423	94,229	2,589,459	27.42
61	.006951	90,699	630	90,384	2,129,189	23.48	61	.004857	94,018	457	93,790	2,495,230	26.54
62	.007623	90,069	687	89,725	2,038,805	22.64	62	.005300	93,561	496	93,313	2,401,440	25.67
63	.008321	89,382	744	89,010	1,949,080	21.81	63	.005778	93,065	538	92,797	2,308,127	24.80
64	.009050	88,638	802	88,237	1,860,070	20.98	64	.006283	92,528	581	92,237	2,215,330	23.94
65	.010401	87,836	914	87,379	1,771,833	20.17	65	.006885	91,946	633	91,630	2,123,093	23.09
66	.011308	86,922	983	86,431	1,684,454	19.38	66	.007513	91,313	686	90,970	2,031,463	22.25
67	.012316	85,939	1,058	85,410	1,598,023	18.59	67	.008212	90,627	744	90,255	1,940,493	21.41
68	.013401	84,881	1,137	84,312	1,512,613	17.82	68	.008963	89,883	806	89,480	1,850,238	20.58
69	.014535	83,744	1,217	83,135	1,428,300	17.06	69	.009733	89,077	867	88,644	1,760,757	19.77
70	.017700	82,526	1,461	81,796	1,345,166	16.30	70	.011077	88,210	977	87,722	1,672,113	18.96
71	.019246	81,066	1,560	80,286	1,263,370	15.58	71	.012119	87,233	1,057	86,705	1,584,392	18.16
72	.021004	79,505	1,670	78,670	1,183,084	14.88	72	.013343	86,176	1,150	85,601	1,497,687	17.38
73	.022930	77,835	1,785	76,943	1,104,414	14.19	73	.014720	85,026	1,252	84,401	1,412,085	16.61
74	.024991	76,051	1,901	75,100	1,027,470	13.51	74	.016201	83,775	1,357	83,096	1,327,685	15.85
75	.028000	74,150	2,076	73,112	952,370	12.84	75	.018386	82,418	1,515	81,660	1,244,589	15.10
76	.031438	72,074	2,266	70,941	879,258	12.20	76	.020328	80,902	1,645	80,080	1,162,929	14.37
77	.034362	69,808	2,399	68,609	808,317	11.58	77	.022562	79,258	1,788	78,364	1,082,849	13.66
78	.037569	67,409	2,532	66,143	739,708	10.97	78	.025035	77,469	1,939	76,500	1,004,485	12.97
79	.041011	64,877	2,661	63,547	673,565	10.38	79	.027701	75,530	2,092	74,484	927,986	12.29
80	.049772	62,216	3,097	60,668	610,018	9.80	80	.032805	73,438	2,409	72,233	853,502	11.62
81	.054203	59,120	3,204	57,517	549,350	9.29	81	.036325	71,029	2,580	69,739	781,268	11.00
82	.058958	55,915	3,297	54,267	491,833	8.80	82	.040282	68,449	2,757	67,070	711,530	10.40
83	.064020	52,618	3,369	50,934	437,566	8.32	83	.044628	65,691	2,932	64,226	644,460	9.81
84	.069362	49,250	3,416	47,542	386,632	7.85	84	.049306	62,760	3,094	61,213	580,234	9.25
85	.082946	45,834	3,802	43,933	339,090	7.40	85	.057949	59,665	3,458	57,937	519,022	8.70
86	.089468	42,032	3,761	40,152	295,157	7.02	86	.063876	56,208	3,590	54,413	461,085	8.20
87	.096383	38,272	3,689	36,427	255,005	6.66	87	.070407	52,617	3,705	50,765	406,673	7.73
88	.103658	34,583	3,585	32,790	218,578	6.32	88	.077478	48,913	3,790	47,018	355,907	7.28
89	.111276	30,998	3,449	29,273	185,788	5.99	89	.085016	45,123	3,836	43,205	308,890	6.85
90	.119250	27,549	3,285	25,906	156,515	5.68	90	.093114	41,287	3,844	39,365	265,685	6.44
91	.127617	24,263	3,096	22,715	130,608	5.38	91	.101839	37,443	3,813	35,536	226,320	6.04
92	.136405	21,167	2,887	19,723	107,893	5.10	92	.111292	33,629	3,743	31,758	190,784	5.67
93	.145580	18,280	2,661	16,949	88,170	4.82	93	.121390	29,887	3,628	28,073	159,026	5.32
94	.155116	15,619	2,423	14,407	71,221	4.56	94	.132070	26,259	3,468	24,525	130,953	4.99
95	.165039	13,196	2,178	12,107	56,813	4.31	95	.143411	22,791	3,268	21,157	106,428	4.67
96	.175378	11,018	1,932	10,052	44,705	4.06	96	.155487	19,522	3,035	18,005	85,272	4.37
97	.186154	9,086	1,691	8,240	34,654	3.81	97	.168394	16,487	2,776	15,099	67,267	4.08
98	.197338	7,394	1,459	6,665	26,414	3.57	98	.182041	13,711	2,496	12,463	52,168	3.80
99	.208906	5,935	1,240	5,315	19,750	3.33	99	.196373	11,215	2,202	10,114	39,706	3.54
100	.237440	4,695	1,115	4,138	14,434	3.07	100	.212859	9,012	1,918	8,053	29,592	3.28
101	.250905	3,580	898	3,131	10,296	2.88	101	.228836	7,094	1,623	6,282	21,539	3.04
102	.264874	2,682	710	2,327	7,165	2.67	102	.245726	5,471	1,344	4,799	15,256	2.79
103	.279324	1,972	551	1,696	4,838	2.45	103	.263452	4,126	1,087	3,583	10,458	2.53
104	.294216	1,421	418	1,212	3,142	2.21	104	.281937	3,039	857	2,611	6,875	2.26
105	.309583	1,003	310	848	1,930	1.92	105	.301259	2,182	657	1,854	4,264	1.95
106	.393638	692	273	556	1,082	1.56	106	.388732	1,525	593	1,229	2,411	1.58
107	.476925	420	200	320	526	1.25	107	.470067	932	438	713	1,182	1.27
108	.559477	220	123	158	207	0.94	108	.550739	494	272	358	469	0.95
109	1.000000	97	97	48	48	0.50	109	1.000000	222	222	111	111	0.50

Born in 2000

Male							Female						
x	q_x	l_x	d_x	L_x	T_x	e_x	x	q_x	l_x	d_x	L_x	T_x	e_x
0	.005595	100,000	560	99,552	8,140,625	81.41	0	.004558	100,000	456	99,639	8,553,320	85.53
1	.000356	99,440	35	99,423	8,041,072	80.86	1	.000381	99,544	38	99,525	8,453,685	84.92
2	.000271	99,405	27	99,392	7,941,650	79.89	2	.000241	99,506	24	99,494	8,354,159	83.96
3	.000227	99,378	23	99,367	7,842,258	78.91	3	.000183	99,482	18	99,473	8,254,665	82.98
4	.000161	99,356	16	99,348	7,742,891	77.93	4	.000136	99,464	14	99,457	8,155,192	81.99
5	.000110	99,340	11	99,334	7,643,544	76.94	5	.000098	99,450	10	99,446	8,055,735	81.00
6	.000088	99,329	9	99,324	7,544,210	75.95	6	.000089	99,441	9	99,436	7,956,289	80.01
7	.000074	99,320	7	99,316	7,444,885	74.96	7	.000080	99,432	8	99,428	7,856,853	79.02
8	.000061	99,312	6	99,309	7,345,569	73.96	8	.000072	99,424	7	99,420	7,757,425	78.02
9	.000060	99,306	6	99,303	7,246,260	72.97	9	.000071	99,417	7	99,413	7,658,005	77.03
10	.000073	99,301	7	99,297	7,146,956	71.97	10	.000068	99,410	7	99,406	7,558,591	76.03
11	.000071	99,293	7	99,290	7,047,659	70.98	11	.000069	99,403	7	99,400	7,459,185	75.04
12	.000109	99,286	11	99,281	6,948,370	69.98	12	.000094	99,396	9	99,391	7,359,785	74.05
13	.000162	99,275	16	99,267	6,849,089	68.99	13	.000113	99,387	11	99,381	7,260,394	73.05
14	.000228	99,259	23	99,248	6,749,821	68.00	14	.000137	99,376	14	99,369	7,161,013	72.06
15	.000286	99,237	28	99,223	6,650,573	67.02	15	.000187	99,362	19	99,353	7,061,644	71.07
16	.000402	99,208	40	99,188	6,551,351	66.04	16	.000213	99,343	21	99,333	6,962,292	70.08
17	.000401	99,169	40	99,149	6,452,162	65.06	17	.000230	99,322	23	99,311	6,862,959	69.10
18	.000485	99,129	48	99,105	6,353,014	64.09	18	.000241	99,299	24	99,287	6,763,648	68.11
19	.000518	99,081	51	99,055	6,253,909	63.12	19	.000234	99,275	23	99,264	6,664,361	67.13
20	.000584	99,029	58	99,000	6,154,854	62.15	20	.000257	99,252	26	99,239	6,565,097	66.15
21	.000530	98,971	52	98,945	6,055,854	61.19	21	.000252	99,227	25	99,214	6,465,857	65.16
22	.000596	98,919	59	98,890	5,956,909	60.22	22	.000249	99,202	25	99,189	6,366,643	64.18
23	.000605	98,860	60	98,830	5,858,019	59.26	23	.000254	99,177	25	99,164	6,267,454	63.19
24	.000632	98,800	62	98,769	5,759,189	58.29	24	.000260	99,152	26	99,139	6,168,290	62.21
25	.000682	98,738	67	98,704	5,660,420	57.33	25	.000241	99,126	24	99,114	6,069,151	61.23
26	.000677	98,671	67	98,637	5,561,716	56.37	26	.000246	99,102	24	99,090	5,970,037	60.24
27	.000671	98,604	66	98,571	5,463,078	55.40	27	.000258	99,078	26	99,065	5,870,947	59.26
28	.000679	98,538	67	98,504	5,364,508	54.44	28	.000262	99,052	26	99,039	5,771,882	58.27
29	.000692	98,471	68	98,437	5,266,004	53.48	29	.000275	99,026	27	99,013	5,672,843	57.29
30	.000945	98,402	93	98,356	5,167,567	52.51	30	.000372	98,999	37	98,981	5,573,830	56.30
31	.000972	98,309	96	98,262	5,069,211	51.56	31	.000384	98,962	38	98,943	5,474,850	55.32
32	.001007	98,214	99	98,164	4,970,950	50.61	32	.000414	98,924	41	98,904	5,375,906	54.34
33	.001040	98,115	102	98,064	4,872,785	49.66	33	.000443	98,883	44	98,861	5,277,003	53.37
34	.001081	98,013	106	97,960	4,774,721	48.72	34	.000480	98,839	47	98,816	5,178,141	52.39
35	.001222	97,907	120	97,847	4,676,761	47.77	35	.000525	98,792	52	98,766	5,079,326	51.41
36	.001274	97,787	125	97,725	4,578,914	46.83	36	.000569	98,740	56	98,712	4,980,560	50.44
37	.001331	97,663	130	97,598	4,481,189	45.88	37	.000620	98,684	61	98,653	4,881,848	49.47
38	.001380	97,533	135	97,465	4,383,591	44.94	38	.000659	98,623	65	98,590	4,783,194	48.50
39	.001427	97,398	139	97,329	4,286,126	44.01	39	.000698	98,558	69	98,524	4,684,604	47.53
40	.001484	97,259	144	97,187	4,188,797	43.07	40	.000741	98,489	73	98,453	4,586,080	46.56
41	.001561	97,115	152	97,039	4,091,610	42.13	41	.000802	98,416	79	98,377	4,487,628	45.60
42	.001657	96,963	161	96,883	3,994,571	41.20	42	.000879	98,337	86	98,294	4,389,251	44.63
43	.001794	96,803	174	96,716	3,897,688	40.26	43	.000973	98,251	96	98,203	4,290,957	43.67
44	.001949	96,629	188	96,535	3,800,972	39.34	44	.001091	98,155	107	98,102	4,192,754	42.72
45	.001585	96,441	153	96,364	3,704,438	38.41	45	.001030	98,049	101	97,998	4,094,652	41.76
46	.001772	96,288	171	96,202	3,608,073	37.47	46	.001146	97,947	112	97,891	3,996,654	40.80
47	.001944	96,117	187	96,024	3,511,871	36.54	47	.001276	97,835	125	97,773	3,898,763	39.85
48	.002126	95,930	204	95,828	3,415,847	35.61	48	.001403	97,710	137	97,642	3,800,991	38.90
49	.002323	95,726	222	95,615	3,320,019	34.68	49	.001535	97,573	150	97,498	3,703,349	37.95
50	.002423	95,504	231	95,388	3,224,404	33.76	50	.001715	97,423	167	97,340	3,605,851	37.01
51	.002661	95,273	253	95,146	3,129,015	32.84	51	.001872	97,256	182	97,165	3,508,512	36.07
52	.002938	95,019	279	94,879	3,033,870	31.93	52	.002053	97,074	199	96,974	3,411,346	35.14
53	.003244	94,740	307	94,586	2,938,990	31.02	53	.002242	96,875	217	96,766	3,314,372	34.21
54	.003573	94,433	337	94,264	2,844,404	30.12	54	.002451	96,658	237	96,539	3,217,606	33.29

Born in 2000 (Continued)

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
55	.003645	94,095	343	93,924	2,750,140	29.23	55	.002736	96,421	264	96,289	3,121,067	32.37
56	.004023	93,752	377	93,564	2,656,216	28.33	56	.002986	96,157	287	96,013	3,024,778	31.46
57	.004446	93,375	415	93,167	2,562,653	27.44	57	.003256	95,870	312	95,714	2,928,765	30.55
58	.004914	92,960	457	92,732	2,469,485	26.57	58	.003536	95,558	338	95,389	2,833,051	29.65
59	.005428	92,503	502	92,252	2,376,754	25.69	59	.003833	95,220	365	95,037	2,737,662	28.75
60	.005956	92,001	548	91,727	2,284,502	24.83	60	.004256	94,855	404	94,653	2,642,625	27.86
61	.006549	91,453	599	91,154	2,192,774	23.98	61	.004617	94,451	436	94,233	2,547,972	26.98
62	.007182	90,854	653	90,528	2,101,621	23.13	62	.005038	94,015	474	93,778	2,453,739	26.10
63	.007840	90,202	707	89,848	2,011,093	22.30	63	.005492	93,541	514	93,284	2,359,961	25.23
64	.008526	89,495	763	89,113	1,921,245	21.47	64	.005971	93,028	555	92,750	2,266,677	24.37
65	.009807	88,732	870	88,296	1,832,132	20.65	65	.006540	92,472	605	92,170	2,173,927	23.51
66	.010662	87,861	937	87,393	1,743,835	19.85	66	.007136	91,867	656	91,540	2,081,757	22.66
67	.011613	86,925	1,009	86,420	1,656,442	19.06	67	.007800	91,212	711	90,856	1,990,218	21.82
68	.012637	85,915	1,086	85,372	1,570,022	18.27	68	.008514	90,500	770	90,115	1,899,361	20.99
69	.013708	84,829	1,163	84,248	1,484,651	17.50	69	.009246	89,730	830	89,315	1,809,246	20.16
70	.016701	83,667	1,397	82,968	1,400,403	16.74	70	.010536	88,900	937	88,432	1,719,931	19.35
71	.018161	82,269	1,494	81,522	1,317,435	16.01	71	.011528	87,964	1,014	87,457	1,631,499	18.55
72	.019820	80,775	1,601	79,975	1,235,913	15.30	72	.012694	86,949	1,104	86,398	1,544,043	17.76
73	.021635	79,174	1,713	78,318	1,155,938	14.60	73	.014005	85,846	1,202	85,245	1,457,645	16.98
74	.023577	77,461	1,826	76,548	1,077,620	13.91	74	.015416	84,643	1,305	83,991	1,372,401	16.21
75	.026400	75,635	1,997	74,637	1,001,072	13.24	75	.017495	83,339	1,458	82,610	1,288,410	15.46
76	.029788	73,638	2,194	72,541	926,436	12.58	76	.019344	81,881	1,584	81,089	1,205,800	14.73
77	.032554	71,445	2,326	70,282	853,894	11.95	77	.021469	80,297	1,724	79,435	1,124,711	14.01
78	.035585	69,119	2,460	67,889	783,613	11.34	78	.023820	78,573	1,872	77,637	1,045,277	13.30
79	.038838	66,659	2,589	65,365	715,724	10.74	79	.026355	76,701	2,021	75,690	967,640	12.62
80	.047184	64,070	3,023	62,559	650,359	10.15	80	.031216	74,680	2,331	73,514	891,949	11.94
81	.051375	61,047	3,136	59,479	587,800	9.63	81	.034563	72,349	2,501	71,098	818,435	11.31
82	.055874	57,911	3,236	56,293	528,321	9.12	82	.038327	69,848	2,677	68,509	747,337	10.70
83	.060663	54,675	3,317	53,017	472,028	8.63	83	.042460	67,171	2,852	65,745	678,827	10.11
84	.065717	51,358	3,375	49,671	419,012	8.16	84	.046910	64,319	3,017	62,810	613,082	9.53
85	.070562	47,983	3,770	46,098	369,341	7.70	85	.055195	61,302	3,384	59,610	550,272	8.98
86	.084738	44,214	3,747	42,340	323,242	7.31	86	.060839	57,918	3,524	56,156	490,662	8.47
87	.091287	40,467	3,694	38,620	280,902	6.94	87	.067059	54,394	3,648	52,571	434,506	7.99
88	.098177	36,773	3,610	34,968	242,282	6.59	88	.073793	50,747	3,745	48,874	381,935	7.53
89	.105391	33,163	3,495	31,415	207,314	6.25	89	.080971	47,002	3,806	45,099	333,061	7.09
90	.112942	29,668	3,351	27,992	175,899	5.93	90	.088682	43,196	3,831	41,281	287,962	6.67
91	.120865	26,317	3,181	24,726	147,907	5.62	91	.096990	39,366	3,818	37,457	246,681	6.27
92	.129186	23,136	2,989	21,642	123,180	5.32	92	.105991	35,547	3,768	33,664	209,224	5.89
93	.137874	20,147	2,778	18,758	101,539	5.04	93	.115605	31,780	3,674	29,943	175,561	5.52
94	.146903	17,369	2,552	16,094	82,780	4.77	94	.125773	28,106	3,535	26,338	145,618	5.18
95	.156298	14,816	2,316	13,660	66,687	4.50	95	.136569	24,571	3,356	22,893	119,279	4.85
96	.166086	12,502	2,076	11,464	53,027	4.24	96	.148065	21,215	3,141	19,645	96,386	4.54
97	.176288	10,425	1,838	9,507	41,563	3.99	97	.160351	18,074	2,898	16,625	76,742	4.25
98	.186877	8,588	1,605	7,785	32,057	3.73	98	.173340	15,176	2,631	13,861	60,117	3.96
99	.197827	6,983	1,381	6,292	24,272	3.48	99	.186981	12,545	2,346	11,372	46,256	3.69
100	.225976	5,601	1,266	4,968	17,980	3.21	100	.202556	10,200	2,066	9,167	34,884	3.42
101	.238786	4,336	1,035	3,818	13,011	3.00	101	.217757	8,134	1,771	7,248	25,717	3.16
102	.252075	3,300	832	2,884	9,193	2.79	102	.233828	6,362	1,488	5,619	18,469	2.90
103	.265820	2,468	656	2,140	6,309	2.56	103	.250692	4,875	1,222	4,264	12,851	2.64
104	.279984	1,812	507	1,559	4,169	2.30	104	.268279	3,653	980	3,163	8,587	2.35
105	.294599	1,305	384	1,113	2,610	2.00	105	.286661	2,673	766	2,290	5,424	2.03
106	.374574	920	345	748	1,497	1.63	106	.369890	1,907	705	1,554	3,135	1.64
107	.453808	576	261	445	749	1.30	107	.447335	1,201	537	933	1,581	1.32
108	.532326	314	167	231	304	0.97	108	.524122	664	348	490	648	0.98
109	1.000000	147	147	74	74	0.50	109	1.000000	316	316	158	158	0.50

Born in 2010

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
0	.004274	100,000	427	99,658	8,219,380	82.19	0	.003649	100,000	365	99,708	8,614,716	86.15
1	.000268	99,573	27	99,559	8,119,722	81.55	1	.000306	99,635	31	99,620	8,515,008	85.46
2	.000207	99,546	21	99,536	8,020,163	80.57	2	.000196	99,605	20	99,595	8,415,389	84.49
3	.000175	99,525	17	99,517	7,920,628	79.58	3	.000151	99,585	15	99,578	8,315,794	83.50
4	.000126	99,508	12	99,502	7,821,111	78.60	4	.000113	99,570	11	99,564	8,216,216	82.52
5	.000087	99,495	9	99,491	7,721,609	77.61	5	.000083	99,559	8	99,555	8,116,652	81.53
6	.000071	99,487	7	99,483	7,622,118	76.61	6	.000076	99,551	8	99,547	8,017,097	80.53
7	.000061	99,480	6	99,477	7,522,635	75.62	7	.000069	99,543	7	99,540	7,917,550	79.54
8	.000051	99,474	5	99,471	7,423,158	74.62	8	.000063	99,536	6	99,533	7,818,011	78.54
9	.000050	99,469	5	99,466	7,323,687	73.63	9	.000062	99,530	6	99,527	7,718,478	77.55
10	.000062	99,464	6	99,460	7,224,221	72.63	10	.000061	99,524	6	99,521	7,618,951	76.55
11	.000062	99,457	6	99,454	7,124,761	71.64	11	.000063	99,518	6	99,514	7,519,431	75.56
12	.000096	99,451	10	99,446	7,025,306	70.64	12	.000086	99,511	9	99,507	7,419,916	74.56
13	.000144	99,442	14	99,435	6,925,860	69.65	13	.000103	99,503	10	99,498	7,320,409	73.57
14	.000205	99,427	20	99,417	6,826,425	68.66	14	.000126	99,492	13	99,486	7,220,912	72.58
15	.000260	99,407	26	99,394	6,727,008	67.67	15	.000173	99,480	17	99,471	7,121,425	71.59
16	.000370	99,381	37	99,363	6,627,614	66.69	16	.000199	99,463	20	99,453	7,021,954	70.60
17	.000370	99,344	37	99,326	6,528,251	65.71	17	.000215	99,443	21	99,432	6,922,501	69.61
18	.000451	99,308	45	99,285	6,428,925	64.74	18	.000227	99,422	23	99,410	6,823,069	68.63
19	.000483	99,263	48	99,239	6,329,640	63.77	19	.000221	99,399	22	99,388	6,723,659	67.64
20	.000548	99,215	54	99,188	6,230,401	62.80	20	.000243	99,377	24	99,365	6,624,271	66.66
21	.000497	99,161	49	99,136	6,131,213	61.83	21	.000239	99,353	24	99,341	6,524,905	65.67
22	.000559	99,111	55	99,084	6,032,077	60.86	22	.000236	99,329	23	99,318	6,425,564	64.69
23	.000567	99,056	56	99,028	5,932,994	59.90	23	.000241	99,306	24	99,294	6,326,247	63.70
24	.000593	99,000	59	98,970	5,833,966	58.93	24	.000246	99,282	24	99,270	6,226,953	62.72
25	.000639	98,941	63	98,909	5,734,995	57.96	25	.000228	99,258	23	99,246	6,127,683	61.74
26	.000635	98,878	63	98,846	5,636,086	57.00	26	.000233	99,235	23	99,223	6,028,437	60.75
27	.000629	98,815	62	98,784	5,537,240	56.04	27	.000245	99,212	24	99,200	5,929,213	59.76
28	.000636	98,753	63	98,721	5,438,456	55.07	28	.000248	99,188	25	99,175	5,830,014	58.78
29	.000649	98,690	64	98,658	5,339,734	54.11	29	.000262	99,163	26	99,150	5,730,839	57.79
30	.000805	98,626	87	98,582	5,241,076	53.14	30	.000354	99,137	35	99,119	5,631,689	56.81
31	.000911	98,539	90	98,494	5,142,494	52.19	31	.000365	99,102	36	99,084	5,532,569	55.83
32	.000943	98,449	93	98,403	5,044,000	51.23	32	.000393	99,066	39	99,046	5,433,485	54.85
33	.000974	98,356	96	98,308	4,945,597	50.28	33	.000421	99,027	42	99,006	5,334,439	53.87
34	.001013	98,260	100	98,211	4,847,289	49.33	34	.000456	98,985	45	98,963	5,235,433	52.89
35	.001145	98,161	112	98,105	4,749,079	48.38	35	.000499	98,940	49	98,915	5,136,471	51.92
36	.001194	98,048	117	97,990	4,650,974	47.44	36	.000541	98,891	53	98,864	5,037,555	50.94
37	.001247	97,931	122	97,870	4,552,984	46.49	37	.000589	98,837	58	98,808	4,938,691	49.97
38	.001283	97,809	126	97,746	4,455,114	45.55	38	.000627	98,779	62	98,748	4,839,884	49.00
39	.001337	97,683	131	97,617	4,357,368	44.61	39	.000663	98,717	65	98,684	4,741,136	48.03
40	.001390	97,552	136	97,484	4,259,750	43.67	40	.000705	98,651	69	98,617	4,642,452	47.06
41	.001462	97,417	142	97,345	4,162,266	42.73	41	.000763	98,582	75	98,544	4,543,835	46.09
42	.001552	97,274	151	97,199	4,064,920	41.79	42	.000836	98,507	82	98,466	4,445,290	45.13
43	.001680	97,123	163	97,042	3,967,722	40.85	43	.000925	98,424	91	98,379	4,346,825	44.16
44	.001826	96,960	177	96,871	3,870,680	39.92	44	.001038	98,333	102	98,282	4,248,446	43.20
45	.001485	96,783	144	96,711	3,773,809	38.99	45	.000980	98,231	96	98,183	4,150,164	42.25
46	.001668	96,639	161	96,559	3,677,098	38.05	46	.001089	98,135	107	98,082	4,051,981	41.29
47	.001831	96,478	177	96,390	3,580,539	37.11	47	.001213	98,028	119	97,969	3,953,899	40.33
48	.002002	96,301	193	96,205	3,484,149	36.18	48	.001334	97,909	131	97,844	3,855,930	39.38
49	.002188	96,109	210	96,004	3,387,944	35.25	49	.001460	97,779	143	97,707	3,758,086	38.43
50	.002281	95,898	219	95,789	3,291,941	34.33	50	.001631	97,636	159	97,556	3,660,379	37.49
51	.002505	95,680	240	95,560	3,196,152	33.40	51	.001780	97,477	174	97,390	3,562,823	36.55
52	.002766	95,440	264	95,308	3,100,592	32.49	52	.001952	97,303	190	97,208	3,465,433	35.61
53	.003055	95,176	291	95,031	3,005,284	31.58	53	.002133	97,113	207	97,010	3,368,225	34.68
54	.003364	94,885	319	94,726	2,910,253	30.67	54	.002332	96,906	226	96,793	3,271,216	33.76

Born in 2010 (Continued)

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
55	.003432	94,566	325	94,404	2,815,528	29.77	55	.002602	96,680	252	96,554	3,174,423	32.83
56	.003788	94,241	357	94,063	2,721,124	28.87	56	.002841	96,428	274	96,292	3,077,868	31.92
57	.004186	93,885	393	93,688	2,627,061	27.98	57	.003097	96,155	298	96,006	2,981,577	31.01
58	.004627	93,492	433	93,276	2,533,373	27.10	58	.003363	95,857	322	95,696	2,885,571	30.10
59	.005111	93,059	476	92,821	2,440,098	26.22	59	.003646	95,534	348	95,360	2,789,875	29.20
60	.005609	92,583	519	92,324	2,347,277	25.35	60	.004049	95,186	385	94,993	2,694,515	28.31
61	.006167	92,064	568	91,780	2,254,953	24.49	61	.004392	94,801	416	94,593	2,599,522	27.42
62	.006763	91,496	619	91,187	2,163,173	23.64	62	.004792	94,384	452	94,158	2,504,929	26.54
63	.007382	90,878	671	90,542	2,071,986	22.80	63	.005223	93,932	491	93,687	2,410,771	25.67
64	.008028	90,207	724	89,845	1,981,443	21.97	64	.005679	93,442	531	93,176	2,317,084	24.80
65	.009236	89,483	826	89,069	1,891,599	21.14	65	.006221	92,911	578	92,622	2,223,908	23.94
66	.010040	88,656	890	88,211	1,802,529	20.33	66	.006788	92,333	627	92,020	2,131,286	23.08
67	.010936	87,766	960	87,286	1,714,318	19.53	67	.007419	91,706	680	91,366	2,039,266	22.24
68	.011900	86,806	1,033	86,290	1,627,032	18.74	68	.008098	91,026	737	90,657	1,947,900	21.40
69	.012909	85,773	1,107	85,220	1,540,742	17.96	69	.008794	90,289	794	89,892	1,857,243	20.57
70	.015728	84,666	1,332	84,000	1,455,523	17.19	70	.010021	89,495	897	89,046	1,767,351	19.75
71	.017102	83,334	1,425	82,622	1,371,523	16.46	71	.010965	88,598	971	88,112	1,678,305	18.94
72	.018664	81,909	1,529	81,145	1,288,901	15.74	72	.012073	87,626	1,058	87,097	1,590,193	18.15
73	.020373	80,380	1,638	79,562	1,207,756	15.03	73	.013320	86,568	1,153	85,992	1,503,096	17.36
74	.022202	78,743	1,748	77,869	1,128,194	14.33	74	.014662	85,415	1,252	84,789	1,417,104	16.59
75	.024860	76,995	1,914	76,038	1,050,325	13.64	75	.016640	84,163	1,400	83,463	1,332,315	15.83
76	.028192	75,080	2,117	74,022	974,288	12.98	76	.018398	82,763	1,523	82,001	1,248,852	15.09
77	.030809	72,964	2,248	71,840	900,266	12.34	77	.020419	81,240	1,659	80,411	1,166,851	14.36
78	.033677	70,716	2,382	69,525	828,426	11.71	78	.022655	79,581	1,803	78,680	1,086,440	13.65
79	.036756	68,334	2,512	67,079	758,901	11.11	79	.025066	77,778	1,950	76,803	1,007,761	12.96
80	.044655	65,823	2,939	64,353	691,822	10.51	80	.029689	75,829	2,251	74,703	930,957	12.28
81	.048621	62,883	3,057	61,355	627,469	9.98	81	.032873	73,577	2,419	72,368	856,254	11.64
82	.052878	59,826	3,163	58,244	566,114	9.46	82	.036452	71,159	2,594	69,862	783,886	11.02
83	.057410	56,663	3,253	55,036	507,870	8.96	83	.040383	68,565	2,769	67,180	714,024	10.41
84	.062192	53,410	3,322	51,749	452,834	8.48	84	.044615	65,796	2,936	64,328	646,844	9.83
85	.074348	50,088	3,724	48,226	401,085	8.01	85	.052491	62,860	3,300	61,211	582,516	9.27
86	.080193	46,364	3,718	44,505	352,859	7.61	86	.057859	59,561	3,446	57,838	521,305	8.75
87	.086390	42,646	3,684	40,804	308,355	7.23	87	.063774	56,115	3,579	54,325	463,468	8.26
88	.092909	38,962	3,620	37,152	267,551	6.87	88	.070177	52,536	3,687	50,693	409,142	7.79
89	.099736	35,342	3,525	33,579	230,399	6.52	89	.077004	48,849	3,762	46,968	358,450	7.34
90	.106882	31,817	3,401	30,117	196,820	6.19	90	.084336	45,088	3,803	43,186	311,481	6.91
91	.114379	28,416	3,250	26,791	166,703	5.87	91	.092237	41,285	3,809	39,381	268,295	6.50
92	.122253	25,166	3,077	23,628	139,912	5.56	92	.100796	37,477	3,778	35,588	228,914	6.11
93	.130474	22,089	2,882	20,648	116,284	5.26	93	.109939	33,700	3,705	31,847	193,325	5.74
94	.139017	19,207	2,670	17,872	95,636	4.98	94	.119608	29,995	3,588	28,201	161,478	5.38
95	.147907	16,537	2,446	15,314	77,763	4.70	95	.129674	26,407	3,430	24,692	133,277	5.05
96	.157170	14,091	2,215	12,984	62,449	4.43	96	.140805	22,977	3,235	21,360	108,585	4.73
97	.166823	11,877	1,981	10,886	49,465	4.16	97	.152487	19,742	3,010	18,237	87,225	4.42
98	.176841	9,895	1,750	9,020	38,579	3.90	98	.164839	16,732	2,758	15,353	68,988	4.12
99	.187203	8,145	1,525	7,383	29,559	3.63	99	.177809	13,974	2,485	12,731	53,636	3.84
100	.214916	6,621	1,423	5,909	22,176	3.35	100	.192637	11,489	2,213	10,382	40,904	3.56
101	.227097	5,198	1,180	4,607	16,267	3.13	101	.207093	9,276	1,921	8,315	30,522	3.29
102	.239733	4,017	963	3,536	11,660	2.90	102	.222376	7,355	1,636	6,537	22,207	3.02
103	.252803	3,054	772	2,668	8,124	2.66	103	.238414	5,719	1,364	5,038	15,669	2.74
104	.266271	2,282	608	1,978	5,456	2.39	104	.255139	4,356	1,111	3,800	10,632	2.44
105	.280168	1,674	469	1,440	3,477	2.08	105	.272620	3,244	884	2,802	6,832	2.11
106	.356221	1,205	429	991	2,037	1.69	106	.351771	2,360	830	1,945	4,030	1.71
107	.431565	776	335	609	1,047	1.35	107	.425403	1,530	651	1,204	2,085	1.36
108	.506224	441	223	329	438	0.99	108	.498403	879	438	660	880	1.00
109	1.000000	218	218	109	109	0.50	109	1.000000	441	441	220	220	0.50

Born in 2025

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
0	.003312	100,000	331	99,735	8,325,903	83.26	0	.002910	100,000	291	99,767	8,699,594	87.00
1	.000209	99,669	21	99,650	8,226,168	82.54	1	.000248	99,709	25	99,697	8,599,827	86.25
2	.000165	99,648	16	99,640	8,126,509	81.55	2	.000161	99,684	16	99,676	8,500,130	85.27
3	.000141	99,632	14	99,625	8,026,870	80.57	3	.000126	99,668	13	99,662	8,400,454	84.28
4	.000103	99,619	10	99,612	7,927,245	79.58	4	.000095	99,656	9	99,651	8,300,792	83.29
5	.000073	99,607	7	99,604	7,827,633	78.58	5	.000071	99,646	7	99,643	8,201,141	82.30
6	.000060	99,600	6	99,597	7,728,029	77.59	6	.000066	99,639	7	99,636	8,101,498	81.31
7	.000052	99,594	5	99,591	7,628,432	76.60	7	.000060	99,633	6	99,630	8,001,862	80.31
8	.000044	99,589	4	99,587	7,528,841	75.60	8	.000055	99,627	6	99,624	7,902,233	79.32
9	.000044	99,584	4	99,582	7,429,254	74.60	9	.000055	99,621	5	99,618	7,802,609	78.32
10	.000055	99,580	5	99,577	7,329,672	73.61	10	.000055	99,616	5	99,613	7,702,990	77.33
11	.000054	99,575	5	99,572	7,230,094	72.61	11	.000056	99,610	6	99,607	7,603,377	76.33
12	.000084	99,569	8	99,565	7,130,522	71.61	12	.000077	99,605	8	99,601	7,503,770	75.34
13	.000126	99,561	13	99,555	7,030,957	70.62	13	.000093	99,597	9	99,592	7,404,169	74.34
14	.000182	99,548	18	99,539	6,931,403	69.63	14	.000114	99,588	11	99,582	7,304,577	73.35
15	.000232	99,530	23	99,519	6,831,863	68.64	15	.000156	99,576	16	99,569	7,204,995	72.36
16	.000332	99,507	33	99,491	6,732,345	67.66	16	.000181	99,561	18	99,552	7,105,426	71.37
17	.000333	99,474	33	99,458	6,632,854	66.68	17	.000195	99,543	19	99,533	7,005,874	70.38
18	.000408	99,441	41	99,421	6,533,397	65.70	18	.000208	99,523	21	99,513	6,906,341	69.39
19	.000437	99,400	43	99,379	6,433,976	64.73	19	.000203	99,503	20	99,493	6,806,828	68.41
20	.000498	99,357	49	99,332	6,334,597	63.76	20	.000224	99,482	22	99,471	6,707,336	67.42
21	.000453	99,307	45	99,285	6,235,265	62.79	21	.000220	99,460	22	99,449	6,607,865	66.44
22	.000509	99,262	50	99,237	6,135,980	61.82	22	.000217	99,438	22	99,428	6,508,415	65.45
23	.000517	99,212	51	99,186	6,036,743	60.85	23	.000222	99,417	22	99,406	6,408,988	64.47
24	.000539	99,161	53	99,134	5,937,557	59.88	24	.000227	99,395	23	99,383	6,309,582	63.48
25	.000581	99,107	58	99,078	5,838,423	58.91	25	.000210	99,372	21	99,362	6,210,199	62.49
26	.000577	99,050	57	99,021	5,739,344	57.94	26	.000214	99,351	21	99,341	6,110,837	61.51
27	.000572	98,993	57	98,964	5,640,323	56.98	27	.000225	99,330	22	99,319	6,011,497	60.52
28	.000578	98,936	57	98,907	5,541,359	56.01	28	.000228	99,308	23	99,296	5,912,178	59.53
29	.000590	98,879	58	98,850	5,442,451	55.04	29	.000243	99,285	24	99,273	5,812,882	58.55
30	.000802	98,820	79	98,781	5,343,602	54.07	30	.000328	99,261	33	99,245	5,713,609	57.56
31	.000825	98,741	81	98,700	5,244,821	53.12	31	.000339	99,228	34	99,211	5,614,364	56.58
32	.000854	98,660	84	98,617	5,146,121	52.16	32	.000365	99,195	36	99,177	5,515,153	55.60
33	.000883	98,575	87	98,532	5,047,503	51.20	33	.000391	99,158	39	99,139	5,415,976	54.62
34	.000917	98,488	90	98,443	4,948,971	50.25	34	.000423	99,120	42	99,099	5,316,837	53.64
35	.001039	98,398	102	98,347	4,850,528	49.29	35	.000463	99,078	46	99,055	5,217,738	52.66
36	.001083	98,296	106	98,243	4,752,181	48.35	36	.000502	99,032	50	99,007	5,118,684	51.69
37	.001131	98,189	111	98,134	4,653,939	47.40	37	.000547	98,982	54	98,955	5,019,677	50.71
38	.001172	98,078	115	98,021	4,555,805	46.45	38	.000581	98,928	58	98,899	4,920,722	49.74
39	.001213	97,963	119	97,904	4,457,784	45.50	39	.000618	98,871	61	98,840	4,821,822	48.77
40	.001259	97,845	123	97,783	4,359,880	44.56	40	.000655	98,810	65	98,777	4,722,982	47.80
41	.001324	97,721	129	97,657	4,262,097	43.61	41	.000709	98,745	70	98,710	4,624,205	46.83
42	.001406	97,592	137	97,523	4,164,440	42.67	42	.000777	98,675	77	98,637	4,525,495	45.86
43	.001522	97,455	148	97,381	4,066,917	41.73	43	.000860	98,598	85	98,556	4,426,858	44.90
44	.001654	97,306	161	97,226	3,969,537	40.79	44	.000964	98,514	95	98,466	4,328,303	43.94
45	.001346	97,145	131	97,080	3,872,311	39.86	45	.000912	98,419	90	98,374	4,229,837	42.98
46	.001524	97,015	148	96,941	3,775,231	38.91	46	.001014	98,329	100	98,279	4,131,463	42.02
47	.001672	96,867	162	96,786	3,678,290	37.97	47	.001129	98,229	111	98,174	4,033,184	41.06
48	.001829	96,705	177	96,616	3,581,504	37.04	48	.001241	98,118	122	98,057	3,935,010	40.10
49	.001999	96,528	193	96,431	3,484,888	36.10	49	.001358	97,997	133	97,930	3,836,953	39.15
50	.002083	96,335	201	96,235	3,388,456	35.17	50	.001514	97,863	148	97,789	3,739,023	38.21
51	.002288	96,134	220	96,024	3,292,222	34.25	51	.001653	97,715	161	97,635	3,641,233	37.26
52	.002526	95,914	242	95,793	3,196,197	33.32	52	.001812	97,554	177	97,465	3,543,599	36.32
53	.002790	95,672	267	95,539	3,100,404	32.41	53	.001979	97,377	193	97,281	3,446,133	35.39
54	.003072	95,405	293	95,259	3,004,865	31.50	54	.002164	97,184	210	97,079	3,348,853	34.46

Born in 2025 (Continued)

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
55	.003136	95,112	298	94,963	2,909,607	30.59	55	.002411	96,974	234	96,857	3,251,773	33.53
56	.003460	94,814	328	94,650	2,814,644	29.69	56	.002632	96,740	255	96,613	3,154,916	32.61
57	.003825	94,486	361	94,305	2,719,994	28.79	57	.002870	96,486	277	96,347	3,058,303	31.70
58	.004227	94,124	398	93,926	2,625,689	27.90	58	.003117	96,209	300	96,059	2,961,956	30.79
59	.004670	93,727	438	93,508	2,531,763	27.01	59	.003380	95,909	324	95,747	2,865,897	29.88
60	.005126	93,289	478	93,050	2,438,255	26.14	60	.003754	95,585	359	95,405	2,770,151	28.98
61	.005636	92,811	523	92,549	2,345,205	25.27	61	.004072	95,226	388	95,032	2,674,745	28.09
62	.006182	92,288	570	92,002	2,252,656	24.41	62	.004444	94,838	421	94,627	2,579,713	27.20
63	.006747	91,717	619	91,408	2,160,654	23.56	63	.004844	94,417	457	94,188	2,485,086	26.32
64	.007337	91,098	668	90,764	2,069,246	22.71	64	.005265	93,959	495	93,712	2,390,898	25.45
65	.008446	90,430	764	90,048	1,978,482	21.88	65	.005767	93,465	539	93,195	2,297,186	24.58
66	.009182	89,666	823	89,254	1,888,434	21.06	66	.006292	92,926	585	92,633	2,203,990	23.72
67	.010001	88,843	888	88,399	1,799,180	20.25	67	.006877	92,341	635	92,023	2,111,357	22.86
68	.010883	87,954	957	87,476	1,710,781	19.45	68	.007506	91,706	688	91,362	2,019,334	22.02
69	.011907	86,997	1,027	86,484	1,623,306	18.66	69	.008152	91,018	742	90,647	1,927,972	21.18
70	.014389	85,970	1,237	85,351	1,536,822	17.88	70	.009296	90,276	839	89,856	1,837,325	20.35
71	.015648	84,733	1,326	84,070	1,451,471	17.13	71	.010171	89,436	910	88,982	1,747,469	19.54
72	.017076	83,407	1,424	82,695	1,367,401	16.39	72	.011200	88,527	992	88,031	1,658,488	18.73
73	.018639	81,983	1,528	81,219	1,284,706	15.67	73	.012358	87,535	1,082	86,994	1,570,457	17.94
74	.020311	80,455	1,634	79,638	1,203,487	14.96	74	.013603	86,453	1,176	85,865	1,483,462	17.16
75	.022734	78,821	1,792	77,925	1,123,849	14.26	75	.015438	85,277	1,316	84,619	1,397,597	16.39
76	.025973	77,029	2,001	76,028	1,045,925	13.58	76	.017069	83,961	1,433	83,244	1,312,978	15.64
77	.028382	75,028	2,129	73,963	969,896	12.93	77	.018944	82,528	1,563	81,746	1,229,733	14.90
78	.031021	72,899	2,261	71,768	895,933	12.29	78	.021019	80,964	1,702	80,114	1,147,987	14.18
79	.033853	70,637	2,391	69,442	824,165	11.67	79	.023254	79,263	1,843	78,341	1,067,874	13.47
80	.041154	68,246	2,809	66,842	754,723	11.06	80	.027546	77,420	2,133	76,353	989,533	12.78
81	.044804	65,437	2,932	63,971	687,882	10.51	81	.030498	75,287	2,296	74,139	913,179	12.13
82	.048722	62,506	3,045	60,983	623,910	9.98	82	.033818	72,991	2,468	71,757	839,040	11.50
83	.052893	59,460	3,145	57,888	562,928	9.47	83	.037464	70,522	2,642	69,201	767,284	10.88
84	.057295	56,315	3,227	54,702	505,040	8.97	84	.041390	67,880	2,810	66,476	698,082	10.28
85	.060481	53,088	3,636	51,271	450,338	8.48	85	.048724	65,071	3,171	63,486	631,607	9.71
86	.073864	49,453	3,653	47,627	399,067	8.07	86	.053706	61,900	3,324	60,238	568,121	9.18
87	.079571	45,800	3,644	43,978	351,441	7.67	87	.059196	58,576	3,467	56,842	507,883	8.67
88	.085576	42,156	3,608	40,352	307,463	7.29	88	.065139	55,109	3,590	53,314	451,041	8.18
89	.091863	38,548	3,541	36,778	267,111	6.93	89	.071474	51,519	3,682	49,678	397,727	7.72
90	.098443	35,007	3,446	33,284	230,333	6.58	90	.078279	47,837	3,745	45,964	348,049	7.28
91	.105347	31,561	3,325	29,898	197,049	6.24	91	.085611	44,092	3,775	42,205	302,085	6.85
92	.112599	28,236	3,179	26,646	167,151	5.92	92	.093554	40,317	3,772	38,431	259,880	6.45
93	.120169	25,057	3,011	23,551	140,504	5.61	93	.102038	36,545	3,729	34,681	221,449	6.06
94	.128036	22,046	2,823	20,634	116,953	5.31	94	.111011	32,816	3,643	30,995	186,768	5.69
95	.136222	19,223	2,619	17,914	96,319	5.01	95	.120537	29,173	3,516	27,415	155,774	5.34
96	.144751	16,604	2,404	15,403	78,405	4.72	96	.130680	25,657	3,353	23,980	128,358	5.00
97	.153639	14,201	2,182	13,110	63,002	4.44	97	.141519	22,304	3,156	20,726	104,378	4.68
98	.162864	12,019	1,957	11,040	49,892	4.15	98	.152978	19,148	2,929	17,683	83,652	4.37
99	.172403	10,062	1,735	9,194	38,852	3.86	99	.165011	16,218	2,676	14,880	65,969	4.07
100	.199420	8,327	1,661	7,497	29,658	3.56	100	.178724	13,542	2,420	12,332	51,089	3.77
101	.210720	6,666	1,405	5,964	22,161	3.32	101	.192135	11,122	2,137	10,053	38,757	3.48
102	.222440	5,262	1,170	4,676	16,197	3.08	102	.206313	8,985	1,854	8,058	28,703	3.19
103	.234562	4,091	960	3,611	11,521	2.82	103	.221190	7,131	1,577	6,343	20,645	2.90
104	.247054	3,132	774	2,745	7,909	2.53	104	.236705	5,554	1,315	4,897	14,303	2.58
105	.259942	2,358	613	2,051	5,164	2.19	105	.252921	4,239	1,072	3,703	9,406	2.22
106	.330437	1,745	577	1,457	3,113	1.78	106	.326349	3,167	1,034	2,650	5,703	1.80
107	.400386	1,168	468	934	1,656	1.42	107	.394674	2,133	842	1,712	3,053	1.43
108	.469627	701	329	536	722	1.03	108	.462396	1,291	597	993	1,340	1.04
109	1.000000	372	372	186	186	0.50	109	1.000000	694	694	347	347	0.50

Born in 2050

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
0	.002347	100,000	235	99,812	8,496,934	84.97	0	.002116	100,000	212	99,831	8,836,669	88.37
1	.000151	99,765	15	99,758	8,397,122	84.17	1	.000183	99,788	18	99,779	8,[illegible],938	87.55
2	.000120	99,750	12	99,744	8,297,364	83.18	2	.000121	99,770	12	99,764	8,[illegible],059	86.57
3	.000104	99,738	10	99,733	8,197,620	82.19	3	.000096	99,758	10	99,753	8,537,294	85.58
4	.000077	99,728	8	99,724	8,097,886	81.20	4	.000073	99,749	7	99,745	8,437,541	84.59
5	.000055	99,720	6	99,717	7,998,162	80.21	5	.000055	99,741	5	99,739	8,337,796	83.59
6	.000046	99,715	5	99,712	7,898,445	79.21	6	.000052	99,736	5	99,733	8,238,058	82.60
7	.000041	99,710	4	99,708	7,798,733	78.21	7	.000048	99,731	5	99,728	8,138,324	81.60
8	.000035	99,706	3	99,704	7,699,024	77.22	8	.000045	99,726	4	99,724	8,038,596	80.61
9	.000035	99,703	3	99,701	7,599,320	76.22	9	.000044	99,721	4	99,719	7,938,873	79.61
10	.000044	99,699	4	99,697	7,499,619	75.22	10	.000045	99,717	5	99,715	7,839,153	78.61
11	.000043	99,695	4	99,693	7,399,922	74.23	11	.000047	99,712	5	99,710	7,739,439	77.62
12	.000068	99,690	7	99,687	7,300,230	73.23	12	.000065	99,708	6	99,705	7,639,729	76.62
13	.000102	99,684	10	99,679	7,200,543	72.23	13	.000077	99,701	8	99,697	7,540,024	75.63
14	.000149	99,673	15	99,666	7,100,864	71.24	14	.000097	99,694	10	99,689	7,440,327	74.63
15	.000192	99,659	19	99,649	7,001,198	70.25	15	.000132	99,684	13	99,677	7,340,638	73.64
16	.000276	99,640	28	99,626	6,901,549	69.27	16	.000154	99,671	15	99,663	7,240,960	72.65
17	.000278	99,612	28	99,598	6,801,923	68.28	17	.000167	99,656	17	99,647	7,141,297	71.66
18	.000344	99,584	34	99,567	6,702,325	67.30	18	.000180	99,639	18	99,630	7,041,650	70.67
19	.000368	99,550	37	99,532	6,602,758	66.33	19	.000176	99,621	17	99,612	6,942,020	69.68
20	.000425	99,513	42	99,492	6,503,226	65.35	20	.000195	99,603	19	99,594	6,842,408	68.70
21	.000387	99,471	39	99,452	6,403,734	64.38	21	.000192	99,584	19	99,575	6,742,814	67.71
22	.000434	99,433	43	99,411	6,304,282	63.40	22	.000189	99,565	19	99,556	6,643,239	66.72
23	.000440	99,390	44	99,368	6,204,871	62.43	23	.000194	99,546	19	99,536	6,543,684	65.74
24	.000459	99,346	46	99,323	6,105,503	61.46	24	.000198	99,527	20	99,517	6,444,147	64.75
25	.000494	99,300	49	99,276	6,006,180	60.49	25	.000183	99,507	18	99,498	6,344,630	63.76
26	.000491	99,251	49	99,227	5,906,904	59.51	26	.000187	99,489	19	99,480	6,245,132	62.77
27	.000487	99,202	48	99,178	5,807,678	58.54	27	.000196	99,470	19	99,461	6,145,653	61.78
28	.000493	99,154	49	99,130	5,708,499	57.57	28	.000199	99,451	20	99,441	6,046,192	60.80
29	.000502	99,105	50	99,080	5,609,370	56.60	29	.000214	99,431	21	99,420	5,946,751	59.81
30	.000681	99,055	67	99,022	5,510,290	55.63	30	.000290	99,410	29	99,395	5,847,331	58.82
31	.000700	98,988	69	98,953	5,411,268	54.67	31	.000299	99,381	30	99,366	5,747,935	57.84
32	.000725	98,919	72	98,883	5,312,315	53.70	32	.000322	99,351	32	99,335	5,648,569	56.85
33	.000749	98,847	74	98,810	5,213,432	52.74	33	.000345	99,319	34	99,302	5,549,234	55.87
34	.000778	98,773	77	98,734	5,114,622	51.78	34	.000374	99,285	37	99,266	5,449,931	54.89
35	.000983	98,696	97	98,652	5,015,888	50.82	35	.000409	99,248	41	99,228	5,350,665	53.91
36	.000920	98,609	91	98,563	4,917,235	49.87	36	.000443	99,207	44	99,185	5,251,437	52.93
37	.000961	98,518	95	98,471	4,818,672	48.91	37	.000482	99,163	48	99,140	5,152,252	51.96
38	.000996	98,423	98	98,374	4,720,201	47.96	38	.000513	99,116	51	99,090	5,053,112	50.98
39	.001030	98,325	101	98,275	4,621,827	47.01	39	.000544	99,065	54	99,038	4,954,022	50.01
40	.001068	98,224	105	98,172	4,523,552	46.05	40	.000579	99,011	57	98,982	4,854,984	49.03
41	.001124	98,119	110	98,064	4,425,380	45.10	41	.000627	98,954	62	98,923	4,756,002	48.06
42	.001194	98,009	117	97,950	4,327,316	44.15	42	.000687	98,892	68	98,858	4,657,079	47.09
43	.001292	97,892	126	97,829	4,229,366	43.20	43	.000760	98,824	75	98,786	4,558,222	46.12
44	.001404	97,765	137	97,697	4,131,538	42.26	44	.000852	98,749	84	98,707	4,459,436	45.16
45	.001144	97,628	112	97,572	4,033,841	41.32	45	.000807	98,664	80	98,625	4,360,729	44.20
46	.001311	97,516	128	97,453	3,936,269	40.37	46	.000897	98,585	88	98,541	4,262,105	43.23
47	.001438	97,389	140	97,319	3,838,816	39.42	47	.000999	98,496	98	98,447	4,163,564	42.27
48	.001573	97,249	153	97,172	3,741,498	38.47	48	.001098	98,398	108	98,344	4,065,117	41.31
49	.001719	97,096	167	97,012	3,644,326	37.53	49	.001201	98,290	118	98,231	3,966,773	40.36
50	.001791	96,929	174	96,842	3,547,313	36.60	50	.001337	98,172	131	98,106	3,868,542	39.41
51	.001967	96,755	190	96,660	3,450,472	35.66	51	.001459	98,041	143	97,969	3,770,435	38.46
52	.002172	96,565	210	96,460	3,353,812	34.73	52	.001600	97,898	157	97,819	3,672,466	37.51
53	.002399	96,355	231	96,239	3,257,352	33.81	53	.001747	97,741	171	97,656	3,574,647	36.57
54	.002641	96,124	254	95,997	3,161,113	32.89	54	.001910	97,570	186	97,477	3,476,991	35.64

Born in 2050 (Continued)

Male							Female						
X	q_x	l_x	d_x	L_x	T_x	e_x	X	q_x	l_x	d_x	L_x	T_x	e_x
55	.002697	95,870	259	95,741	3,065,116	31.97	55	.002125	97,384	207	97,281	3,379,514	34.70
56	.002977	95,611	285	95,469	2,969,375	31.06	56	.002320	97,177	225	97,064	3,282,233	33.78
57	.003290	95,327	314	95,170	2,873,906	30.15	57	.002529	96,952	245	96,829	3,185,169	32.85
58	.003637	95,013	346	94,840	2,778,737	29.25	58	.002748	96,706	266	96,574	3,088,340	31.94
59	.004018	94,667	380	94,477	2,683,896	28.35	59	.002980	96,441	287	96,297	2,991,766	31.02
60	.004412	94,287	416	94,079	2,589,419	27.46	60	.003310	96,153	318	95,994	2,895,469	30.11
61	.004851	93,871	455	93,643	2,495,340	26.58	61	.003592	95,835	344	95,663	2,799,475	29.21
62	.005320	93,416	497	93,167	2,401,696	25.71	62	.003919	95,491	374	95,304	2,703,812	28.31
63	.005807	92,919	540	92,649	2,308,529	24.84	63	.004272	95,117	406	94,914	2,608,508	27.42
64	.006314	92,379	583	92,088	2,215,880	23.99	64	.004643	94,710	440	94,490	2,513,595	26.54
65	.007273	91,796	668	91,462	2,123,792	23.14	65	.005084	94,271	479	94,031	2,419,104	25.66
66	.007906	91,128	720	90,768	2,032,330	22.30	66	.005547	93,791	520	93,531	2,325,073	24.79
67	.008611	90,408	779	90,019	1,941,562	21.48	67	.006063	93,271	565	92,988	2,231,542	23.93
68	.009371	89,629	840	89,210	1,851,543	20.66	68	.006618	92,706	613	92,399	2,138,554	23.07
69	.010167	88,790	903	88,338	1,762,334	19.85	69	.007187	92,092	662	91,761	2,046,155	22.22
70	.012395	87,887	1,089	87,342	1,673,996	19.05	70	.008201	91,430	750	91,055	1,954,394	21.38
71	.013479	86,797	1,170	86,212	1,586,653	18.28	71	.008974	90,680	814	90,273	1,863,339	20.55
72	.014710	85,628	1,260	84,998	1,500,441	17.52	72	.009882	89,867	888	89,423	1,773,065	19.73
73	.016055	84,368	1,355	83,691	1,415,443	16.78	73	.010904	88,978	970	88,493	1,683,642	18.92
74	.017494	83,013	1,452	82,287	1,331,753	16.04	74	.012004	88,008	1,056	87,480	1,595,149	18.12
75	.019574	81,561	1,596	80,763	1,249,465	15.32	75	.013623	86,952	1,185	86,360	1,507,669	17.34
76	.022644	79,965	1,811	79,059	1,168,702	14.62	76	.015063	85,767	1,292	85,121	1,421,309	16.57
77	.024742	78,154	1,934	77,187	1,089,643	13.94	77	.016717	84,475	1,412	83,769	1,336,188	15.82
78	.027040	76,220	2,061	75,190	1,012,456	13.28	78	.018547	83,063	1,541	82,293	1,252,419	15.08
79	.029505	74,159	2,188	73,065	937,266	12.64	79	.020518	81,523	1,673	80,686	1,170,126	14.35
80	.035890	71,971	2,583	70,680	864,201	12.01	80	.024308	79,850	1,941	78,879	1,089,439	13.64
81	.039068	69,388	2,711	68,033	793,521	11.44	81	.026912	77,909	2,097	76,861	1,010,560	12.97
82	.042401	66,677	2,833	65,261	725,488	10.88	82	.029841	75,812	2,262	74,681	933,699	12.32
83	.046114	63,845	2,944	62,373	660,227	10.34	83	.033058	73,550	2,431	72,334	859,018	11.68
84	.049949	60,901	3,042	59,380	597,854	9.82	84	.036521	71,119	2,597	69,820	786,684	11.06
85	.059689	57,859	3,454	56,132	538,474	9.31	85	.043017	68,521	2,948	67,048	716,864	10.46
86	.064380	54,405	3,503	52,654	482,342	8.87	86	.047415	65,574	3,109	64,019	649,816	9.91
87	.069054	50,903	3,530	49,137	429,688	8.44	87	.052261	62,465	3,264	60,832	585,797	9.38
88	.074587	47,372	3,533	45,606	380,551	8.03	88	.057508	59,200	3,404	57,498	524,965	8.87
89	.080067	43,839	3,510	42,084	334,945	7.64	89	.063100	55,796	3,521	54,035	467,467	8.38
90	.085801	40,329	3,460	38,599	292,861	7.26	90	.069107	52,275	3,613	50,469	413,431	7.91
91	.091818	36,869	3,385	35,176	254,263	6.90	91	.075579	48,662	3,678	46,823	362,963	7.46
92	.098136	33,483	3,286	31,840	219,087	6.54	92	.082590	44,985	3,715	43,127	316,139	7.03
93	.104733	30,198	3,163	28,616	187,246	6.20	93	.090078	41,269	3,717	39,411	273,012	6.62
94	.111588	27,035	3,017	25,526	158,630	5.87	94	.097996	37,552	3,680	35,712	233,602	6.22
95	.118721	24,018	2,851	22,592	133,103	5.54	95	.106403	33,872	3,604	32,070	197,890	5.84
96	.126152	21,167	2,670	19,831	110,511	5.22	96	.115354	30,268	3,492	28,522	165,820	5.48
97	.133896	18,496	2,477	17,258	90,680	4.90	97	.124919	26,776	3,345	25,104	137,298	5.13
98	.141933	16,020	2,274	14,883	73,422	4.58	98	.135031	23,431	3,164	21,849	112,194	4.79
99	.150244	13,746	2,065	12,713	58,539	4.26	99	.145648	20,267	2,952	18,792	90,344	4.46
100	.175903	11,681	2,056	10,653	45,825	3.92	100	.157708	17,316	2,731	15,950	71,553	4.13
101	.185950	9,625	1,790	8,730	35,172	3.65	101	.169541	14,585	2,473	13,348	55,603	3.81
102	.196289	7,835	1,538	7,066	26,442	3.37	102	.182050	12,112	2,205	11,010	42,254	3.49
103	.206981	6,297	1,303	5,646	19,376	3.08	103	.195177	9,907	1,934	8,940	31,245	3.15
104	.217998	4,994	1,089	4,450	13,730	2.75	104	.208865	7,973	1,665	7,141	22,305	2.80
105	.229365	3,905	896	3,457	9,280	2.38	105	.223171	6,308	1,408	5,604	15,164	2.40
106	.291612	3,010	878	2,571	5,823	1.93	106	.287958	4,900	1,411	4,195	9,560	1.95
107	.353264	2,132	753	1,755	3,252	1.53	107	.348255	3,489	1,215	2,882	5,365	1.54
108	.414334	1,379	571	1,093	1,497	1.09	108	.408004	2,274	928	1,810	2,483	1.09
109	1.000000	808	808	404	404	0.50	109	1.000000	1,346	1,346	673	673	0.50

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[1] Paper presented at Living to 100 and Beyond: Survival at Advanced Ages. Symposium sponsored by the Society of Actuaries, Lake Buena Vista (Florida), 17-18 January 2002.

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